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IN THE

# Supreme Court of the United States

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**No. 31, Original**

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OCTOBER TERM, 1967

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STATE OF UTAH, PLAINTIFF

v.

UNITED STATES OF AMERICA, DEFENDANT

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## REPORT OF SPECIAL MASTER

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CHARLES FAHY,
*Senior Circuit Judge,*
*Special Master.*

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## REPORT OF SPECIAL MASTER

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*To the Chief Justice and Associate Justices of the Supreme Court of the United States:*

### I. INTRODUCTION

This Report of the Special Master is concerned with another stage of the controversy between the State of Utah and the United States over the ownership of certain land, and its content, within the surveyed meander line[1] of the Great Salt Lake.

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[1] The meander line of the Great Salt Lake is the line duly surveyed prior to and in accordance with section 1 of the Act of June 3, 1966, 80 Stat. 192, which provides:

> That the Secretary of the Interior shall within six months of the date of the passage of this Act complete the public land survey around the Great Salt Lake in the State of

Pursuant to the terms of the Act of Congress of June 3, 1966, 80 Stat. 192, as amended, 80 Stat. 349, the Secretary of the Interior on June 15, 1967, by quitclaim deed conveyed to Utah all interests of the United States in these lands, including brines and minerals in solution in the brines, or precipitated or extracted therefrom,[2] conditioned upon payment by Utah to the United States of the market value of the interests covered by the deed should it be determined that they actually belonged to the United States. To have that question judicially determined Utah adopted one of the alternative courses authorized by the Act by filing this original suit in the Supreme Court seeking a decree to quiet its title as against the United States to the lands and content in dispute. See section 5(b) of the Act.

Several phases of the over-all controversy have been decided by the Court. In *Utah* v. *United States*, 394 U.S. 89 (1969), the Court denied intervention of a private claimant, Morton International, Inc., approving the recommendation of the late Senior Circuit Judge J. Cullen Ganey, Special Master. In *Utah* v. *United States*, 403 U.S. 9 (1971), again on the basis of the Report of Judge Ganey, the Court held that the Lake was navigable when the State of Utah was admitted to the Union on January 4, 1896, and that, as a consequence, under the equal-footing doctrine,[3] title to the bed of the Lake at state-

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Utah by closing the meander line of that Lake, following as accurately as possible the mean high water mark of the Great Salt Lake used in fixing the meander line on either side of the unsurveyed area.

[2] When "land", "lands", "bed of the Lake" appear in this Report to describe the interests involved the words are used to include the brines and minerals in solution in the brines or precipitated or extracted therefrom.

[3] *Pollard's Lessee* v. *Hagen*, 44 U.S. (3 How.) 212, 221-23, 228-30 (1845); *Bonelli Cattle Co.* v. *Arizona*, 414 U.S. 313

hood vested in Utah. Thereupon the Court, in *Utah* v. *United States*, 406 U.S. 484, entered its decree of May 22, 1972, in the form of an injunction against the United States, but in substance quieting in Utah, as against the United States, the title to the bed of the Lake lying below its water's edge on June 15, 1967, the date of the quitclaim deed, with exceptions not now material, and to the natural resources and living organisms therein or extracted therefrom. The Court also held that Utah is not required to pay the United States for the interests thus described in the decree.

The decree of May 22, 1972, by its paragraph 3, brings us to the present problem. It provides as follows:

> 3. The basic question yet to be determined in this case is whether prior to June 15, 1967, the claimed doctrine of reliction applies and, if so, whether the doctrine of reliction vests in the United States, and thus divests the State of Utah, of any right, title or interest to any or all of the exposed shorelands situated between the water's edge on June 15, 1967, and the meander line of the Great Salt Lake as duly surveyed prior to or in accordance with § 1 of the Act of June 3, 1966, 80 Stat. 192. A Special Master will be appointed by the Court to hold such hearings, take such evidence and conduct such proceedings as he deems appropriate and, in due course, to report his recommendations to the Court.

406 U.S., at 484-5. Judge Ganey in the meantime having died the Court appointed the present Special Master, with the authority thus noted. 406 U.S. 940 (1972).

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(1973). Under this doctrine, in the absence of a congressional condition to the contrary, a State, upon its admission to the Union, acquires title to the bed of navigable waters within the State, as had the thirteen original colonies as successors to the rights of the British Crown.

Not at issue in this litigation are the claims of private persons, vendees and patentees, to about 275,000 acres adjacent to the Lake.

Following the decree of May 22, 1972, the parties engaged in a cooperative and successful effort to clarify and delineate the issues now considered. This was followed by a hearing before the Special Master at the United States Court House in the District of Columbia on February 27, 1973, at which a large number of exhibits were introduced in evidence, and oral testimony adduced. The exhibits incorporate detailed factual data regarding the Lake and its history, the accuracy of which is accepted by the parties.[4] Briefs followed and the case was taken under submission on October 25, 1973, for preparation of this Report. As it was nearing completion, however, the Court decided *Bonelli Cattle Co.* v. *Arizona*, 414 U.S. 313 (1973), following which the parties have advised the Special Master of their views as to the bearing of *Bonelli* upon this case.

It is now important to note that, in accordance with the desire of both the United States and Utah, the basic question now considered is limited to whether the doctrine of reliction divested Utah of title to that part of the bed of the Lake at statehood which on June 15, 1967, the date of the quitclaim deed, had become exposed by recession of the waters of the Lake, comprising some 325,000 acres. *Infra*, p. 24. The title to any upland between the bed of the Lake at statehood and the meander line is not now considered, the positions of the parties in that regard being reserved pending the answer to the above question.

## II. Summary of Recommended Conclusions

The Special Master recommends that the Court hold that the State of Utah has not been divested by reason

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[4] Reproduced as part of this Report are Plaintiff's Exhibits 4, 5, 9, 10, 11, 12 and 17, and Defendant's Exhibits 2, 3 and 6. The originals of all the Exhibits are on file with the Clerk of the Court.

of the doctrine of reliction of any right, title or interest to that part of the bed of the Great Salt Lake acquired by it at statehood which had become exposed by recession of the waters of the Lake to June 15, 1967; that Utah is entitled to a decree quieting its title as against the United States to the area thus described insofar as any claim thereto by the United States rests upon the doctrine of reliction; and that no compensation is due from the State of Utah to the United States under the Act of June 3, 1966, for said area.

## III. Federal Law Controls

Under the recent decision of the Court in *Bonelli*, *supra*, it seems clear that federal law governs the decision of this case. The land, title to which was in dispute in *Bonelli*, abutted the Colorado River, a navigable stream. Title to the bed of the river had been acquired by Arizona at statehood under the equal-footing doctrine. The riparian owner, Bonelli Cattle Company, held title which stemmed from a federal patent.[5] Prior to the litigation the river by erosion had inundated part of the Bonelli land, thus extending the river bed eastward. Thereafter the United States, with the acquiescence of Arizona, rechanneled the river for navigational purposes and caused the eroded area to be reexposed. Bonelli Cattle Company as the riparian landowner claimed the exposed area under the doctrine of accretion. The Court held that this question was to be decided under the federal common law of accretion, not under state law. It follows, in the view of the Special Master, that the related question of reliction as now presented must also be decided under federal

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[5] In *Bonelli* the claimant against the State under the doctrine of accretion held title under a federal patent to a predecessor in title; but it was not clear whether the land covered by the patent was riparian at the date of the patent. *See* 414 U.S. at 321, n.11.

law. As with respect to Arizona in *Bonelli*, so with respect to Utah now, the title of each State accrued under the equal-footing doctrine, and the riparian owner in each case claims title to the upland under the United States.

The Court held in *Bonelli:*

> We continue to adhere to the principle that it is left to the States to determine the rights of riparian owners in the beds of navigable streams which, under federal law, belong to the State. But this doctrine does not require that state law govern the instant controversy. The issue before us is not what rights the State has accorded private owners in lands which the State holds as sovereign; but, rather, how far the State's sovereign right extends under the equal-footing doctrine and the Submerged Lands Act—whether the State retains title to the lands formerly beneath the stream of the Colorado River or whether that title is defeasible by the withdrawal of those waters. As this Court observed in *Borax, Ltd.* v. *Los Angeles*, 296 U.S. 10, 22 (1935): "The question as to the extent of this federal grant, that is as to the limit of the land conveyed, . . . is necessarily a federal question. . . . [I]t involves the ascertainment of the essential basis of a right asserted under federal law."

414 U.S. at 319-20.

While the United States is free to adopt or to acquiesce in the application of state law even though otherwise federal law would govern,[6] the Court in *Bonelli* held that it had not done so by the Submerged Lands Act, 43 U.S.C. §§ 1301, *et seq.*, so holding in terms which the Special Master considers applicable as well to the present case:

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[6] *United States* v. *Oregon*, 295 U.S. 1, 28 (1935); *Hughes* v. *Washington*, 389 U.S. 290, 292-93 (1967).

> The [Submerged Lands] Act did not abrogate the federal law of accretion, but defined lands beneath navigable waters as being those covered by streams as "hereafter modified by accretion, erosion, and reliction." . . . Since the Act does not extend to the States any interest beyond those afforded by the equal-footing doctrine, the State can no more base its claim to lands unnecessary to a navigational purpose on the Submerged Lands Act than on that doctrine. (Footnote omitted.)[7]

414 U.S. at 324-25.

## IV. History and General Characteristics of the Great Salt Lake

The Report of Special Master Ganey, filed October 26, 1970, contains in considerable detail the history and characteristics of the Lake. These are now outlined, beginning with the testimony before the present Special Master on February 27, 1973, of Mr. Theodore Arnow,[8] a joint expert witness. He described the Lake as located entirely within Utah and as a remnant of the ancient Bonneville Lake, one of the last major lakes formed in geological time in the Great Basin.[9] Before it began to dry

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[7] By analogous reasoning the reliance of the State upon the Rules of Decision Act, 28 U.S.C. § 1652, cannot be accepted as a basis for applying state law in light of *Bonelli*, all else aside. It was not applied in either *Hughes* v. *Washington*, *supra*, or *Bonelli*.

[8] Mr. Arnow is the District Chief of the Water Resources Division of the Geological Survey in Utah charged with the responsibility of gathering statistical data regarding the Lake.

[9] The Great Basin is located in Western Utah, most of Nevada and smaller parts of other States. Although the climate in the Great Basin is now arid with less precipitation than evaporation, many centuries ago the climate was more humid so that lakes which formed there would in alternate periods dry up and then form once again.

up over 20,000 years ago Lake Bonneville covered approximately 35,000 square miles, about the size of Lake Superior and twenty times the area of the Great Salt Lake. The Great Salt Lake is about 70 miles long and 30 miles wide, with a volume of 15,000,000 acre-feet covering about 1,650 square miles. Its maximum depth is 34 feet. The Lake is surrounded by very flat shorelands except where mountain ranges project upward through the water.[10] The flat shorelands are vast mud flats barren of any vegetation due to the high salinity of the Lake, and are used for nothing except recreation and as evaporation ponds for extracting minerals and salts. (Tr. 33.) A visual illustration of the general nature of the mud flats can be obtained from Exhibit P-6 which contains twelve color photographs of the shore as it appeared on February 12, 1972, when covered with snow. The Exhibit also contains twenty-four black and white photographs showing the mud flats as they appeared on October 26, 1972, with no snow. Both sets of photographs contain maps showing the location of each photograph and a description of the view illustrated.

The Lake has no outlet and thus no way of discharging the water which it receives by the inflow of tributary streams and by precipitation. The water level also is influenced by man-made interferences with the rate of inflow.[11] The only "outflow" from the Lake is by evaporation. (Tr. 36.)

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[10] Judge Ganey's Report filed October 26, 1970, states in his Finding No. 18, p. 21, in part as follows:

> Except for an area at the southeastern shore near the base of the Oquirrh Mountains, where the beaches are located, the Lake is surrounded by stretches of salt flats, marshes or bogs, some of which are in places several miles in width. (Footnote omitted.)

[11] Exhibit P-18 demonstrates that the Lake would be at a higher vertical elevation if man had not interfered with the

The rate of evaporation and the resulting changes in the elevation of the Lake depend upon wind, temperature, salinity of the water and the surface area of the Lake, which is affected by the rate of tributary inflow and the degree of salinity. The periods of maximum inflow, the late fall and the spring, precede the period of maximum evaporation, during the summer. The Lake is continually fluctuating due to these interrelated factors.

Records of the Lake were kept first by the Mormons who arrived in the area in 1847, Mr. Arnow continued. At that time the elevation of the Lake was approximately 4200 feet above sea level.[12] Exhibit P-4. At statehood in 1896 the elevation of the Lake was 4200.2 feet. In February, 1973, at the time of the hearing before the Special Master, the elevation was approximately 4200 feet, within a few inches of the statehood figure. (Tr. 37-38; Exhibit P-4. And see Tr. 18; Post-Trial Brief of United States, p. 19, n.13.) Therefore, in February, 1973, the relation of the waters of the Lake to the adjoining shorelands was about as it was at statehood, quite different from what it was on June 15, 1967, the date of the quitclaim deed.

Since statehood the Lake has fluctuated as much as thirteen feet from a high of 4205 feet in 1924 to a low of 4192 feet in 1963.[13] The fluctuations have followed no set pattern on either a long range or short range basis, whether measured at five year intervals, one year inter-

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natural rate of inflow. However, this does not change the nature of the fluctuations of the water level which would still fluctuate as dramatically and frequently but at a higher elevation.

[12] In noting at different places in this Report the level or elevation of the Lake the numerals in each instance refer to "above sea level."

[13] The Lake reached its highest elevation in 1873, prior to statehood, when its level rose to 4212 feet. *See* Exhibit P-4

vals, six month intervals, monthly intervals, or even daily or hourly intervals. See Exhibits P-8—P-17.

Special reference is made by the Special Master to the map marked as Exhibit D-2. The area of the bed of the Lake exposed between statehood and the date of the quitclaim deed is shown in the dark shading, dark blue in the original. The large light area represents the bed at the date of the quitclaim deed, light blue in the original. The area between the bed of the Lake at statehood and the surveyed meander line is the exterior medium shading, green in the original.

## V. Factual Characteristics of the Reliction Process

The land of a riparian owner may be affected by the action of the water by avulsion, erosion, accretion and reliction. Neither avulsion nor erosion is involved. The former occurs when there is a sudden or violent change in the course of a stream, in which event the title lines remain as before. *County of St. Clair* v. *Lovingston*, 90 U.S. (23 Wall.) 46, 68 (1874); *Philadelphia Co.* v. *Stimson*, 223 U.S. 605, 624-25 (1912); *Bonelli, supra*, 414 U.S. at 327. Erosion is the gradual washing away of land by the water, thus extending its bed and simultaneously contracting the riparian land. See *Arkansas* v. *Tennessee*, 246 U.S. 158, 173 (1918); *United States* v. *461.42 Acres of Land*, 222 F.Supp. 55 (N.D. Ohio, 1963).

At common law accretion was the enlargement of the riparian land by the action of the water in gradually and imperceptibly depositing soil. See *Mississippi* v. *Arkansas*, — U.S. — (February 26, 1974). Reliction had this common characteristic of a gradual and imperceptible change in the relation of the water to the land, but by uncovering existing land rather than, as in accretion, depositing additional soil. The Court in *Bonelli* affirmed these characteristics of accretion and reliction:

> Federal law recognizes the doctrine of accretion whereby the "grantee of land bounded by a body of navigable water acquires a right to any natural and gradual accretion formed along the shore." *Hughes* v. *Washington*, 389 U.S. 290, 293 (1967); accord, *Jones* v. *Johnson*, 18 How. 150, 156 (1856). When there is a gradual and imperceptible accumulation of land on a navigable riverbank, by way of alluvion or reliction, the riparian owner is the beneficiary of title to the surfaced land:
>
> > "It is the established rule that the riparian proprietor of land bounded by a stream, the banks of which are changed by the gradual and imperceptible process of accretion or erosion, continues to hold the stream as his boundary; if his land is increased he is not accountable for the gain, and if it is diminished he has no recourse for the loss." *Philadelphia Co.* v. *Stimson*, 223 U.S. 605, 624 (1912).

414 U.S. at 325-26.

As had been stated in *Hughes* v. *Washington*, *supra*, 389 U.S. at 293, land gained by accretion is "by little and little, by small and imperceptible degrees," and belongs to the riparian owner. The Court continued:

> The Court has repeatedly reaffirmed this rule, *County of St. Clair* v. *Lovingston*, 23 Wall. 46 (1874); *Jefferis* v. *East Omaha Land Co.*, 134 U.S. 178 (1890), and the soundness of the principle is scarcely open to question. Any other rule would leave riparian owners continually in danger of losing the access to water which is often the most valuable feature of their property, and continually vulnerable to harassing litigation challenging the location of the original water lines. (Footnote omitted.)

The earlier English case of *The King* v. *Lord Yarborough*, 107 Eng.Rep. 668 (K.B. 1824), states the common law principle. The claim was that the land in dispute "being slowly, gradually, and by imperceptible increase, in long time cast up, deposited, and settled by and from the flux and reflux of the tide and water of the sea"

upon the "extremity of the demesne lands of the manor, [the projection] hath been formed, and hath been settled, grown, and accrued upon . . . the demesne lands. . . ." *Id.* at 673.

The court there held,

> It is clear upon the evidence, that the land has been formed slowly and gradually in the way mentioned in the plea . . . [a]nd considering the word "imperceptible" in this issue, as connected with the words "slow and gradual," we think it must be understood as expressive only of the manner of the accretion, as the words undoubtedly are, and as meaning imperceptible in its progress, not imperceptible after a long lapse of time. . . .

*Id.* at 674.

It is interesting to compare this statement of 1824 with that of the Supreme Court of Utah in 1971 in *Utah* v. *Hardy*, 26 Utah 2d 143, 486 P.2d 391. Although Utah law does not govern this case, the United States in its brief before the Special Master recognizes that the opinion of the Supreme Court of Utah defines reliction "in terms perfectly consonant with the federal common law":

> The doctrine of "reliction" in the law covers the situation involving the title to the land which emerges from beneath a body of water caused by a recession of the waters. The law of reliction is generally the same as that of accretion as it concerns contiguity, imperceptibility and naturalness of the process of the water's recession and the exposure of additional land. The law of reliction, as well as accretion, has evolved over a long period of time and is based upon the rights of a riparian owner to have access to the water adjacent to his property.

26 Utah 2d at 144-45, 486 P.2d at 392-93. The court held, however, after reviewing the "unique and special conditions" affecting Great Salt Lake,

> . . . that the recession of the waters from the land [there in question] has not been natural, gradual

> and imperceptible, and that the doctrine of reliction should not be applied.

26 Utah 2d at 145, 486 P.2d at 393.

It is now clear, however, from *Bonelli* that under federal common law though accretion may occur as formerly by the gradual and imperceptible process which evolved under the non-federal common law, it may also occur in a perceptible manner at least where the owner of the bed of the navigable water is a State which acquired title to the bed under the equal-footing doctrine. In this regard the Court in *Bonelli* holds:

> The [earlier] advance of the Colorado's waters divested the title of the upland owners in favor of the State in order to guarantee full public enjoyment of the watercourse. But, when the water receded from the land, there was no longer a public benefit to be protected; consequently, the State, as sovereign, has no need for title. That the course of the recession was artificial, or that the rate was perceptible, should be of no effect.[14]

414 U.S. at 323-24.

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[14] We have seen that some decisions refer to accretion or reliction as an addition to land by natural causes:

> A long and unbroken line of decisions of this Court establishes that the grantee of land bounded by a body of navigable water acquires a right to any natural and gradual accretion formed along the shore.

*Hughes* v. *Washington, supra*, 389 U.S. at 293; *and see Jones* v. *Johnston*, 59 U.S. (18 How.) 150, 158 (1856), both referred to in *Bonnelli*, 414 U.S. at 325; *Utah* v. *Hardy, supra*, 26 Utah 2d at 144-45, 486 P.2d at 392-93. *But see County of St. Clair* v. *Lovingston, supra*, also cited in *Bonelli* at 327. In the present case, according to the testimony of Mr. Arnow, supported by reference to Exhibit P-18, the following appears:

> . . . the lake would have been 3.7 feet higher at the time of statehood if it weren't for the activities of man in the basin. . . . [C]arrying it through 1967. . . . the difference

Postponing for consideration under Part VII, *infra*, the view of the Special Master that a reasonably permanent or stable result of the process is essential to a finding of reliction, and recognizing that under *Bonelli* reliction, as accretion, may at times occur perceptibly, it seems appropriate first to consider the claim of the United States that the recession of the Lake as of June 15, 1967, the date of the quitclaim deed, had occurred by the "little by little" or gradual and imperceptible process, and for that reason Utah had lost the area in question to the United States under the reliction doctrine.

## VI. The Special Master is Unable to Find that the Exposure of the Bed of the Great Salt Lake June 15, 1967, the Date of the Quitclaim Deed, Had Come About by a Gradual and Imperceptible Process

The term "fluctuations" is used herein to mean, unless otherwise indicated, the reactions of the waters of the Lake, aside from responses to the wind, to changes in the elevation or level of the Lake. The United States points out that the Lake experiences three general types of fluctuations, annual, seasonal and daily. Upon this factual basis the United States centers its claim that reliction accounts for the exposure of the shorelands between statehood and June 15, 1967, since, it is said, only the annual fluctuation reflects a change in the ordinary high water mark, which, according to the United States, is that boundary subject to modification by reliction. Thus, we

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is . . . 5.28 feet higher in 1967 than it actually was, if it weren't for the activities of man.

(Tr. 44.) Except for these activities the bed of the Lake would not have been exposed as of June 15, 1967 to the extent this had occurred. The State of Utah, however, has not pressed before the Special Master reliance upon the effect due to the activities of man.

are urged to look only to annual "fluctuations" of the level of the Lake, for daily fluctuation allegedly is caused by the wind and is not a change in the level of the Lake, and seasonal fluctuation recurs each year in essentially the same pattern. Exhibit P-4. On the other hand, the annual change is a product of every physical factor affecting the level of the Lake, see pages 8-9, *supra*, and is measured, according to the United States, by differences in the "average yearly stage" of the Lake, which is the average of the levels of the Lake at regular intervals over a 12-month cycle. Exhibit D-6.

Therefore, the United States continues, the "average yearly stage" of the Lake is the proper standard for measuring the level of the Lake. This "average annual change" since statehood has generally been less than 1 foot per year. However, since some of the shorelands are extremely flat, the water moves almost in a horizontal direction and a small change in the level of the Lake can inundate or expose hundreds of feet of shoreland. Thus, the annual average change in level of only .69 feet (8.28 inches) would expose or inundate about 50,000 acres of shoreland. Exhibit P-5. The shoreline of the Lake is 350 lineal miles, with the result, it is said, that an average annual movement along the shore is less than 1200 feet, barely 3 feet per day or a little over 1½ inches per hour. The United States accordingly concludes that such a movement is not humanly perceptible as it occurs, adding, "[n]one of the changes in the level of the Great Salt Lake have been of so sudden or violent a character as to be perceptible while the process was going on." Exhibits P-18, D-4.[15]

It should be noted that in distributing the 50,000 acres of shoreland among the 350 lineal miles consideration was

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[15] According to the United States the most extreme change in the boundary occurred between 1906 and 1907 and amounted to less than 15 inches per hour.

not given to the fact that the shorelands are not uniformly affected by change in the level of the Lake. The flat shorelands surrounding the Lake are interrupted at different points by small mountain ranges set back at varying distances from the shoreline. For example, on the north side of the Lake the Promontory Mountains form a headland of about 30 miles long which juts southward in toward the center of the Lake. See Exhibit P-1. In the southeastern sector of the Lake rise the Oquirrh Mountains and the Stansbury Mountains. Several mountain clusters also exist within a few miles of the western shore of the Lake. Among these are the Lakeside Mountains and Terrace Mountains. The eastern and northwest shorelands of the Lake, however, are almost entirely dominated by salt and mud flats. See Report of Special Master Ganey, October 26, 1970, at 10-13; Exhibit P-1. The various mountain ranges form an irregular barrier to a uniform spread of the water when the Lake is on the rise. Mr. Arnow refers to differences in consequence of a change of 5 feet in the Lake elevation. For instance, at those points on the west side where the flat shorelands dominate, water could rush inland for 7½ miles, whereas such a change would cause "very little change—no change" where the mountains are.[16] (Tr. at 34.)

The movements of the water during any year, and the resulting exposure or inundation of the shorelands, are not mirrored in the annual averages. Thus, an examina-

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[16] When the United States speaks of an average movement along the shore of a little more than 1½ inches per hour there is not reflected the fact that the Lake's movement along that part of its shoreline where mountains rise is less than where there are vast stretches of flat land where the water can rush overland almost unimpeded. Utah, however, does not discuss this inaccuracy, as it seems to the Special Master, in the United States' calculations.

tion of Exhibits P-9 and P-10 [17] discloses that the elevations of the Lake on June 1 and November 1, from 1850 to 1972 [18] generally ranged between one and two feet within a six-month span, exposing or inundating about 50,000 to 150,000 acres of the shallow mud flats. However, the yearly average of these movements is not their visual movements. Changes in elevation may be gradual and imperceptible but are only a part of a process the whole of which includes the effect upon the shorelands of such changes. If the effect on the shorelands is not imperceptible then the whole of the process is not imperceptible within the meaning of the doctrine of reliction.

The fluctuations at monthly intervals from 1896 to February 1, 1973, are shown on Exhibits P-11 and P-12. Changes in elevation are noted on the former. The latter translates those changes into acreage of shorelands affected. Study of these Exhibits together with Exhibits P-13 and P-14,[19] and using as illustrative the period from November 1, 1970 to June 15, 1971, shows that the rise in the level of the Lake flooded over 450,000 acres of the flat shorelands, followed by a recession for three and a half months, leaving inundated about 175,000 acres, rising again to inundate some 380,000 acres in the following seven and a half months. The Lake then receded for four and a half months, leaving inundated some 200,000 acres.

Exhibit P-16 charts the fluctuations for June, 1967. On June 6, for example, the level of the Lake rose and fell 10 times. When these actual fluctuations are averaged, however, the net change is zero. For ten days just

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[17] The data contained in the Exhibits are based on undisputed gauge recordings.

[18] Only to June 1, 1972.

[19] Exhibits P-13 and P-14, however, are limited to monthly intervals from 1955 through February 1, 1973.

prior to June 15, 1967, the date of the quitclaim deed, the major fluctuations in elevation ranged between 3 and 6 inches, inundating or exposing between 10,000 and 20,000 acres with each fluctuation.[20]

If the actual change since statehood in the relation of the waters of the Lake to the adjoining land had been as calculated by the United States, only a little over 1½ inches per hour,[21] the position of the United States that the process has been imperceptible would be substantial, but this statement of the rate of change in the relation of the water level to acreage affected does not reflect the actual changes as they occurred. Changes in the level of the Lake are gradual. However, the imperceptibility feature of reliction is to be judged according to the actual effect on the shorelands of such a change. The unique nature of the area causes a gradual and slight change in the elevation of the Lake to result in a much greater alteration of the relation of the water to the land. This is demonstrated by the statistical data which has been charted from the records, partially analyzed above and more fully disclosed by the Exhibits which chart more fully the constant movements of the waters and the ef-

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[20] The above are a few of many detailed records which have been graphed and charted upon Exhibits placed in the record. Similar chartings of daily and hourly fluctuations in elevation and accompanying effect on acreage are available in the Exhibits, although only some of those specifically referred to are reproduced in this Report. The Special Master does not understand that either the United States or Utah challenges the accuracy of any of the Exhibits, but only their significance on the imperceptibility issue, or, stated otherwise, only their significance on the issue of reliction. There is appended to this Report as Appendix A, calculations of the movements of the Lake by periods which have been compiled by the Special Master from the Exhibits. These calculations were approved by the parties with slight modifications.

[21] *See* p. 15, *supra*.

fect of these on the land, annually, seasonally, monthly, daily and hourly.

To place the matter thus disclosed in a light most favorable to the United States is to consider what may be referred to as the net result of the movements of the Lake over a substantial period of time. For example, in the ten years from about 1953 to 1963 (see Exhibits P-12 and D-6), the general movement, due to lowering of the elevation of the Lake, was a recession of its waters from the shorelands, accompanied, however, by rather constant fluctuations up and down, as it were, as the general recession continued. At the end of the period there was a very perceptible area which had become exposed during the period, but perhaps there had been at no particular moment a separate perceptible component of this total movement of exposure. To accept this, however, as meeting the imperceptible element of reliction, would in the view of the Special Master be an adaptation of that element of the doctrine to the unique character of the Great Salt Lake rather than to apply the imperceptible element as it has developed in the law. While there are indeed features in the over-all process and its result, thus described, which arguably favor the Court's acceptance of the imperceptible element of the doctrine, nevertheless the continued rise and fall of the elevation of the Lake on an hourly, daily and weekly basis, is unprecedented in the historical development and previous application of this element of the doctrine. This of course is due to the unique character of the area, with the erratic movements of the Lake over the land, almost constantly responding in exaggerated reflexes to slight alterations in the level of its surface.[22] The unique situ-

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[22] The effect of the wind should also be mentioned. Mr. Arnow testified: ". . . we have a pile-up of two feet of water in the first few hours of a storm. And if the wind will persist steadily for a period of days in the same direction, the

ation resists doctrinaire classification. The perceptible net or residual change after a passage of time in the relation of the water to the land, due either to recession or progression of the water, may often be obscured as it occurs by the constant fluctuations of the water. The Special Master, however, is unable to find that the recession of the Lake to its level of June 15, 1967, occurred in a gradual and imperceptible manner.

Moreover, and importantly, even were the recession to June 15, 1967, gradual and imperceptible, the relation of the water to the shorelands at that date was not of the reasonably permanent or stable character essential, in the view of the Special Master, to application of the doctrine of reliction, a matter to be more fully discussed.

## VII. The Rationales of Reliction, In Large Measure Those of Accretion, Are Not Supported By the Facts of the Present Case

1. It seems desirable to round out the rationales of the doctrine, with special reference to the Court's treatment of accretion in *Bonelli*. The Court summarized the reasons underlying the common law doctrine as follows:

> First, where lands are bounded by water, it may well be regarded as the expectancy of the riparian owners that they should continue to be so bounded.[21] Second, the quality of being riparian, especially to navigable water, may be the land's "most valuable feature" and is part and parcel of the ownership of the land itself. *Hughes* v. *Washington*, *supra*, at 293; *Yates* v. *Milwaukee*, 10 Wall. 497, 504 (1871). Riparianness also encompasses the vested right to

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water level is pushed up ½ a foot and will stay half a foot higher for several days." (Tr. 47.) Also, "the higher the wind the higher the evaporation," and "the higher the temperature the higher the evaporation."

future alluvion, which is an "essential attribute of the original property." *County of St. Clair* v. *Lovingston*, 23 Wall. 46, 68 (1874). By requiring that the upland owner suffer the burden of erosion and by giving him the benefit of accretions, riparianness is maintained. Finally, there is a compensation theory at work. Riparian land is at the mercy of the wanderings of the river. Since a riparian owner is subject to losing land by erosion beyond his control, he should benefit from any addition to his lands by the accretions thereto which are equally beyond his control. *Ibid.* The effect of the doctrine of accretion is to give the riparian owner a "'"fee, determinable upon the occupancy of his soil by the river," and [to afford] the State [a title] to the river bed [which is] likewise a . . . "qualified" fee, "determinable in favor of the riparians upon the abandonment of the bed by the river."'"[22]

[21] [Omitted.]

[22] 107 Ariz., at 472, 489 P.2d, at 706 (Lockwood, J., dissenting), quoting, *State* v. *R.E. Janes Gravel Co.*, 175 S.W.2d 739, 741 (Tex.Civ.App. 1943), rev'd on other grounds *sub nom. Maufrais* v. *State*, 142 Tex. 559, 180 S.W.2d 144 (1944).

414 U.S. at 326.

Reverting to the factual situation in *Bonelli*, the Court pointed out in addition that the riparian owner, "because of the navigational servitude" is at the mercy of "governmental forces which may similarly affect the riparian quality of his estate":

Accordingly, where land cast up in the Federal Government's exercise of the servitude is not related to furthering the navigational or related public interests, the accretion doctrine should provide a disposition of the land as between the riparian owner and the State. See *Michaelson* v. *Silver Beach Assn.*, 342 Mass. 251, 173 N.E.2d 273 (1961).

414 U.S. at 329.

The navigational and related public interests of a State have required that a State retain title to and con-

trol of navigable waterways as an element of its sovereignty. This has proved historically necessary because,

> " 'Such waters . . . are incapable of ordinary and private occupation, cultivation and improvement; and their natural and primary uses are public in their nature, for highways of navigation and commerce, domestic and foreign, and for the purpose of fishing. . . .' *Shively* v. *Bowlby*, *supra*, at 11."

414 U.S. at 322.

However, once the rechannelization project was accomplished the land exposed as a consequence, formerly part of the riverbed, was "no longer . . . incapable of ordinary and private occupation . . ." and there was, as well, "no longer a public benefit to be protected; consequently, the State, as sovereign, had no need for title." 414 U.S. at 323-24. Thus, *Bonelli* supplements the traditional doctrine of accretion by requiring an appraisal of the state interests affected by the exposure, compared with the interests of the riparian owner.

2. The foregoing considerations underlying the doctrine of accretion, and, insofar as the facts of the present case permit, the doctrine of reliction, subsume, in the view of the Special Master, a reasonable permanence or stability in the change which has occurred in the relation of the water to the land. The United States in its brief before the Special Master urges that a more precise statement would be that the land formation must be "not clearly temporary." The situation in *Bonelli* created by the channeling project was "not clearly temporary." Indeed it was of a permanent character.

The generally uniform characterization of the common law doctrine of reliction and accretion has always seemed to contemplate a result substantially permanent; thus, the land "hath been formed, and hath been settled, grown and accrued," the language of *The King* v. *Lord Yarborough*, *supra*. The omission of the case law to refer

uniformly to permanence is understandably due to this quality being implied as a result of the gradual and imperceptible process. The situation should be no different where the claim rests upon a process which may have been perceptible. Both accretion and reliction involve an addition to the riparian land, ordinarily by a deposit of soil in the case of accretion, by the exposure of land previously under water in the case of reliction. The factor of "addition" implies reasonable stability or permanence. The criterion of "little by little, by small and imperceptible degrees," *Jones* v. *Johnston*, *supra*, 59 U.S. at 156, had reference to "land gained from the sea," which implicitly assumes something more than a temporary condition of the "soil that had gradually been deposited." In *Sapp* v. *Frazier*, 51 La.Ann. 1718, 26 So. 378 (1899), it was said that ". . . 'reliction' is land added to a front tract by the permanent uncovering of the waters," and ". . . as used by the English law, [it] meant when the sea shrank back below the usual watermark, and remained there." 26 So. at 380. *State* v. *Longyear Holding Co.*, 224 Minn. 451, 29 N.W.2d 657 (1947) is to the same effect:

> It is also clear that before a riparian owner can claim title to lands as a result of relictions, *such reliction must be of a permanent nature*, without the possibility of the water again filling in or covering the relicted area. (Emphasis in original.)

29 N.W.2d at 667.

> Derelicted or relicted land is land added by the recession of the water leaving a portion of the bed dry.[39]
>
> [39] *Fontenelle* v. *Omaha Tribe of Nebraska*, 298 F.Supp. 855 (D.Neb. 1969), *aff'd*, 430 F.2d 143 (8th Cir. 1970).

Lundquist, *Artificial Additions to Riparian Land: Extending the Doctrine of Accretion*, 14 ARIZ.L.REV. 316, 321 (1972). And see, *Utah* v. *Hardy*, *supra*.

Though the use of "permanent" as a necessary quality of the change appears sometimes in opinions where the

doctrine is not applied because the change has been so clearly temporary, as in *Flisrand* v. *Madson*, 35 S.D. 457, 152 N.W. 796, 798 (1915), and *Hillebrand* v. *Knapp*, 65 S.D. 414, 274 N.W. 821, 823 (1937), none of the decisions which omit such reference is inconsistent with the idea of permanence or stability. There is nothing in the Court's application of federal common law to the situation in *Bonelli* which indicates any departure from the non-federal common law in this respect. All references to the change in relation of the Colorado River to the shoreland indicate the result was a permanent addition to the riparian land.

3. The special facts of the present case bearing upon the question of permanence are now considered.

At the date of the quitclaim deed the elevation of the Lake was 4194.9 feet (Tr. 3), a drop of 5.3 feet in its level from January 4, 1896, the date of statehood. At that time its elevation was 4200.2 feet. See Report of Special Master Ganey, October 26, 1970, at 29. This lowering of the level of the Lake had exposed by June 15, 1967, an area of about 325,000 acres, shown on Exhibit D-2 in the dark shading. Since June 15, 1967, the level of the Lake has risen to within a few inches of its statehood level, reinundating this area which had become exposed after statehood. Thus as of February 27, 1973, the date of hearing before the Special Master, nearly all the land now in dispute had been resubmerged. See p. 9, *supra*.

This development is part of the physical situation respecting the Lake and adjoining land, demonstrated by data available to the Court and bearing upon the question to be decided. Whatever interests the United States owned June 15, 1967, and described in the deed, passed to Utah; but whether any of this land which had become exposed after statehood was then owned by the United States depends upon whether the doctrine of reliction

had divested Utah of its prior ownership. That question, in the opinion of the Special Master, cannot be answered so as to divest Utah of title to the area in question unless the condition on June 15, 1967 was a reasonably permanent or stable one. This element of the doctrine is illuminated by the continuity of the Lake's history since June 15, 1967.

The importance of the post-June 15, 1967 data is that it demonstrates that the situation had not prior to or on June 15, 1967, reached a state of stability or reasonable permanence. While the Court's decree of May 22, 1972, states the basic question to be whether "prior to June 15, 1967, the claimed doctrine of reliction applies," the facts bearing upon whether the doctrine applies prior to that date include data with respect to the relation of the waters of the Lake to the land on and subsequent to June 15, 1967. This evidence discloses a continuing movement which has reinundated the area, thus reconstituting the bed of the Lake just about as it was at statehood.

It does not seem that the issue of possibly divesting Utah of title to the area should be determined by freezing the situation as it was at some moment on or prior to June 15, 1967, when it has developed that the Lake on that date was in a rising movement which, with interim up and down fluctuations, has continued to the time of the making of the record in this case. See Exhibit P-4.

The doctrines of accretion and reliction contemplate ambulation in title boundaries; but the valuable features of riparian ownership, particularly those incident to maintaining access to the water, and the compensation theory referred to in *Bonelli, supra*, 414 U.S. at 326, seem to the Special Master to envisage a situation different from the special relation of the waters of the Great Salt Lake to the riparian land. Such a relation seems inconsistent with the stability which should pertain to a change

in title by operation of law. In providing for payment by Utah to the United States of such interests as the United States might be found to have conveyed to the State by the quitclaim deed of June 15, 1967, the statute of June 3, 1966 is indicative of a congressional assumption that such payment would be required only if the situation at that date was reasonably permanent in nature rather than temporary, as the history of the Lake has demonstrated it to have been.[23]

4. Under a dominant principle of *Bonelli* the reinundation during the period of this litigation of almost the entire statehood bed of the Great Salt Lake confirms the Special Master in his recommendation adverse to application of the relicition doctrine, because the public benefit of Utah entitled to protection has moved along with the reinundating waters of the Lake, whereas in the *Bonelli* case Arizona's public benefit to be protected faded away as the waters of the Colorado River receded from the land.

Note is taken of the *Statement of the State of Utah With Respect to Bonelli v. Arizona*, filed January 28, 1974, which refers to various interests of Utah in the disputed area as substantial. Among these is that the exercise of its navigational servitude over the Lake would be threatened by a holding that the disputed land is not part of the bed of the Lake. Reference also is made to the brines, salts and minerals in solution. These minerals are extracted by pumping water from the Lake into "settling ponds" on the salt or mud flats, where solar evaporation causes the minerals to precipitate on the bottom of the ponds. See Tr. at 33, 81.

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[23] Should the Court hold that the doctrine of reliction has divested Utah of title to the land claimed by the United States under that doctrine, a question, not factually addressed by the parties on the present record, may arise as to the exact boundary lakeward of the relicted lands on June 15, 1967.

The doctrine of reliction does not seem to furnish a sound basis for resolution as of June 15, 1967, of the respective interests of the two sovereigns in and about this unusual body of water.

## FINDINGS OF FACT [24]

1. The Great Salt Lake is a large body of water surrounded in greater part by shorelands which are so flat that a slight change in the elevation of the Lake causes the water, except where the shore is mountainous, to spread over a large area quite out of proportion to the change in elevation of the surface of the Lake if the change is a rise, and vice versa if a fall.

2. Only a relatively small part of the immediate shoreland is mountainous. See Exhibit P-1; Report of Special Master Ganey, October 26, 1970, at 10-13.

3. Streams of clear water are the chief tributary sources of the Lake, supplemented by precipitation. The Lake has no outlet. Its elevation accordingly is governed by the inflow of the streams, by precipitation, and by evaporation, the latter depending upon climate, the area

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[24] The parties are in agreement as to the physical characteristics and history of the movements of the Lake in relation to the shorelands, represented by the statistical data and charts contained in the Exhibits. This data as set forth in the Report and, also, the testimony of Mr. Arnow and Mr. Hewitt, may therefore be considered as undisputed findings. The present Findings of Fact are limited to those basic or ultimate findings which the Special Master believes are determinative of the conclusion to be reached. They reflect in final form the interim findings and conclusions set forth in the course of his Report.

The fact that the Report in important respects is discursive of the evidence in its legal consequences, and is not confined to factual findings, the Special Master considered justified by the nature of the case.

of the surface of the Lake at different times, and the degree of salinity of the waters of the Lake.

4. As the name of the Lake implies the water is salty. The degree of salinity, which in turn affects the rate of evaporation, depends in part upon the relation of fresh water inflow and precipitation to the degree of evaporation. The latter depends largely upon the relative aridity of the climate at any particular time.

5. Man-made interferences with the rate of tributary inflow over the years has affected the elevation of the Lake. The elevation would have been 3.7 feet higher at the time of statehood and 5.28 feet higher in 1967 if it were not for the activities of man.

6. The various factors above described and their interaction one upon another cause a continuous change in the elevation of the Lake. This causes a constant fluctuation of its waters, in both a receding and inundating character with respect to the flat shorelands.

7. At some periods in the history of the Lake, of which accurate records have been kept, made available to the Court in the record compiled before the Special Master, the general trend in the relation of the waters of the Lake to the shorelands has been a recession from the line which defined the bed of the Lake at statehood, when title to the bed vested in Utah. These periods of general recession, exposing land which was part of the bed at statehood, have always been accompanied by "up and down" fluctuations which did not interrupt the general recession.

8. At other periods in the history of the Lake the opposite of the above has occurred; that is, the general direction of the movement of the waters has been to inundate or reinundate large areas of shoreland previously exposed, accompanied by similar smaller fluctuations "up and down" within the general direction of inundation or reinundation.

9. The situation described in findings 7 and 8 is illustrated by Exhibit P-4 made a part of this Report, and grows out of the variations which occur among the several factors which contribute to the movements of the waters in relation to the shorelands at different times.

10. On January 4, 1896, the date of statehood of Utah, the elevation of the Lake was 4200.2 feet. On June 15, 1967, the date of the quitclaim deed, it was 4194.9 feet, a recession of 5.3 feet. This had resulted as of June 15, 1967, in the exposure of an estimated 325,000 acres of land which was part of the bed of the Lake at statehood.

11. On June 15, 1967, as part of a process of movement of the waters of the Lake in relation to the shorelands which began in 1963, the elevation of the Lake was rising and has continued in a general rising movement to the time of the hearing before the Special Master in February, 1973, at which time nearly all the land exposed as described in Finding 10 had been reinundated so that the bed of the Lake was about as at statehood; that is, the land which at statehood had constituted the bed of the Lake was again almost entirely covered by the waters of the Lake.

12. The Lake experiences three general types of fluctuations, annual, seasonal and daily, although there are also measurable monthly and hourly changes. The annual change is the product of every physical factor affecting the level of the Lake on a yearly basis. The average of changes in the level of the Lake at regular intervals over a 12-month cycle since statehood has been about .69 feet; that is, the average annual change of the level has been about 8.28 inches, a change which, considered alone, would inundate about 50,000 acres of shoreland due to the fact that much of the shoreland is so flat that the water moves almost in a horizontal direction.

13. The shoreline of the Lake is 350 lineal miles. If the shoreline were of about equal flatness and the 50,000 acres referred to in Finding 12 were distributed equally among the lineal miles, the average movement along the shore would be about 1200 feet annually, about 3 feet per day, or a little over 1½ inches per hour. These calculations do not reflect the actual movements of the water as they occur but are based on averages calculated subsequent to the actual movements.

14. The shorelands are not of equal flatness or width of flatness, due to the mountains which are adjacent to some parts of the Lake, shown on Exhibit P-1, and other mountains which border the Lake. The movement of the waters along the lineal miles of shoreland is affected by mountains some of which, although not at the edge of the water or obtruding upward in it, border the shorelines at a distance near enough to affect the spread of the waters in a manner not reflected in the calculation described in Finding 13.

15. By reason of the conditions described in Finding 14 above the calculations reflected in Finding 13 that the average movement along the shore would be about 1200 feet annually, about three feet per day, or little more than 1½ inches per hour, are to an unascertained degree an under-estimate of the rate of movement over extensive areas of shore, a rate of movement which the Special Master cannot find on this record to be imperceptible.

16. The continuous rise and fall of the elevation of the Lake, though gradual, is reflected in a continuous movement of the waters to and fro across the shorelands, apart from the effects of the wind. These movements are often perceptible.

17. The net amount of land exposed or inundated over a substantial period of time is perceptible in comparison with the situation at the beginning of such pe-

riod, although one may not be able at any particular moment to perceive a separate component of the resulting exposure or inundation.

18. The constant fluctuations [25] of the Lake may often obscure the progress, as it occurs, of a recession or inundation which is readily perceived after the passage of time, but the Special Master is unable to find that the progress of such recession or inundation is at a rate which would be imperceptible as it occurs.

19. The land referred to as exposed at the time of the quitclaim deed, which at statehood was part of the bed of the Lake, was not an addition of a reasonably permanent or stable character to the uplands, title to which is in the United States. The land in question has been almost entirely reinundated by a spreading of the waters of the Lake by a movement which began in 1963, was in progress at the date of the quitclaim deed, and continued to the time of the hearing in this case before the Special Master in February, 1973.

## Conclusions of Law

1. The question considered is to be decided under the federal common law doctrine of reliction.

2. Whether under that doctrine any interests were owned by the United States in the lands lying between the outer edge of the bed of the Lake at statehood and its bed underwater on June 15, 1967, which passed to the State of Utah by the quitclaim deed of the United States of June 15, 1967, depends upon whether the exposure of the land referred to, either by a perceptible or a gradual and imperceptible process, constituted a reasonably permanent or stable addition to the riparian land which was up-

[25] The use of "fluctuations" in this finding does not exclude the effect of the wind.

land from the bed of the Lake at statehood, title to which was in the United States.

3. The exposure of the lands referred to occurred in the course of such unique changes in the relation of the waters of the Lake to the shorelands as not to come within the doctrine of reliction. These changes were not at the date of the quitclaim deed of such a reasonably permanent or stable character as to warrant application of the doctrine.

4. The public benefit of Utah which is entitled to protection has accompanied the reinundation of the bed of the Lake to approximately its extent at statehood.

5. The law of reliction has not divested the State of Utah of title to the lands described.

6. The State of Utah is entitled to a decree quieting its title as against the United States to the bed of Great Salt Lake at the date of statehood.

7. The State of Utah is not required to pay the United States for the land covered by Great Salt Lake and below the boundary line of the Lake's bed as of January 4, 1896.

8. The United States is the riparian owner which would be entitled to the benefit of the doctrine of reliction were it applicable to the land the title to which is the subject matter of this Report. The Lake, its bed, and the adjoining land were ceded by Mexico to the United States in 1848 under the Treaty of Guadaloupe Hidalgo, 9 Stat. 922. See Report of Judge Ganey, October 26, 1970, p. 9.

PROPOSED DECREE

It is ordered, adjudged and decreed that:

1. The United States of America, its departments and agencies, are enjoined, subject to any regulations which the Congress may impose in the interest of navigation

or pollution control, from asserting against the State of Utah any claim of right, title and interest:

(a) to any of the exposed shorelands situated between the edge of the waters of the Great Salt Lake on June 15, 1967, and the bed of the Lake on January 4, 1896, when Utah became a State, with the exception of any lands within the Bear River Migratory Bird Refuge and the Weber Basin federal reclamation project;

(b) to the natural resources and living organisms in or beneath any of the exposed shorelands of the Great Salt Lake delineated in (a) above; and

(c) to the natural resources and living organisms either within the waters of the Great Salt Lake, or extracted therefrom, as delineated in (a) above.

2. The State of Utah is not required to pay the United States, through the Secretary of the Interior, for the exposed shorelands, including any minerals, delineated in paragraph 1 above of this decree.

3. There remains the question whether any lands within the meander line of the Great Salt Lake (as duly surveyed prior to or in accordance with section 1 of the Act of June 3, 1966, 80 Stat. 192), and conveyed by quitclaim deed to the State of Utah, included any federally owned uplands above the bed of the Lake on the date of statehood (January 4, 1896) which the United States still owned prior to the conveyance to Utah.[1] In the absence of agreement between the parties disposing of the above question or of the necessity for further proceedings with respect thereto, the Special Master is directed to hold such hearings, take such evidence, and

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[1] As appears from p. 4 of the Special Master's Report the parties have reserved their position with respect to this question.

conduct such proceedings with respect to that question as he deems appropriate and, in due course, to report his recommendations to the Court.

4. The prayer of the United States of America in its answer to the State of Utah's Complaint that this Court "confirm, declare and establish that the United States is the owner of all right, title and interest in all of the lands described in Section 2 of the Act of June 3, 1966, 80 Stat. 192, as amended by the Act of August 23, 1966, 80 Stat. 349, and that the State of Utah is without any right, title or interest in such lands, save for the right to have these lands conveyed to it by the United States, and to pay for them, in accordance with the provisions of the Act of June 3, 1966, as amended," is denied.

Respectfully submitted,

CHARLES FAHY,
*Senior Circuit Judge,*
*Special Master.*

## APPENDIX A

*Statistical Data as to Rise and Fall of Elevation of Lake by Periods, with Effect on Bordering Land.*

### *1. 1873-1906*

At the time of Utah's statehood, the Lake was in a period of general decline which had begun in 1873. In 1873 the Lake's average level was 4211.20 feet and in 1896 it had fallen to an average level of 4201.10 feet. It continued to fall until in 1906 it reached an elevation of an annual average of 4196.83 feet. Thus from 1873 to 1906, the Lake's elevation declined approximately 14.37 feet, and from 1896 to 1906, 4.27 feet. [Exhibits D-3 and D-6.]

The surface area of the Lake receded from an approximate average annual area of 1,554,000 acres in 1873 to approximately 1,120,000 in 1896 and 835,700 acres in 1906, with a recession between 1873 and 1906 of 718,300 acres of land and from 1896 to 1906 of 284,300 acres of land. [Exhibits D-3 and P-5.]

### *2. 1906-1910*

From 1906 to 1910 the Lake rose 6.10 feet, from its average annual elevation of 4196.83 feet to 4202.93 feet, and increased its surface area by approximately 371,800 acres, from 835,700 acres to 1,207,500 acres. [Exhibits D-3 and P-5.]

### *3. 1910-1920*

From 1910 to 1920 the Lake declined 1.71 feet in elevation, from an average elevation of 4202.93 feet to 4201.22 feet, and receding 81,700 acres, from a surface area of 1,207,500 acres to 1,125,800 acres. [Exhibits D-3 and P-5.]

*4. 1920-1924*

From 1920 to 1924 the Lake rose 3.09 feet in elevation from an average of 4201.22 feet to 4204.31 feet, and its surface area increased by 143,700 acres from 1,125,800 acres to 1,269,500 acres. [Exhibits D-3 and P-5.]

*5. 1924-1936*

From 1924 to 1936 the Lake declined 9.54 feet in elevation from an average of 4204.31 feet to 4194.77 feet, and its surface area decreased 566,700 acres, from 1,269,500 acres to 702,800 acres. [Exhibits D-3 and P-5.]

*6. 1936-1953*

From 1936 to 1953 the Lake rose 5.17 feet in elevation, from an average of 4194.77 feet to 4199.94 feet, and its surface area increased 355,600 acres from 702,800 acres to 1,058,400 acres. [Exhibits D-3 and P-5.]

*7. 1953-1963*

From 1953 to 1963 the Lake declined 7.2 feet in elevation from an average of 4199.94 feet to 4192.22 feet, and its surface area decreased 438,800 acres from 1,058,400 acres to 619,600 acres. [Exhibits D-3 and P-5.]

*8. 1963-1973 Hearing*

From 1963 to the 1973 Hearing the Lake has been generally rising. In 1963 the elevation of the Lake was 4192.22 feet, the average level. In 1967, the average elevation of the Lake was 4194.01 feet, an increase of 1.79 feet. By 1967 the Lake's surface area had increased 52,800 acres from an average of 619,600 acres to 672,400 acres. If the Lake has reached 4200 feet, it would have risen 7.78 feet since 1963 and its surface area would have increased 442,400 acres to 1,062,000 acres. [Exhibits D-3 and P-5.]

EXHIBIT P-4

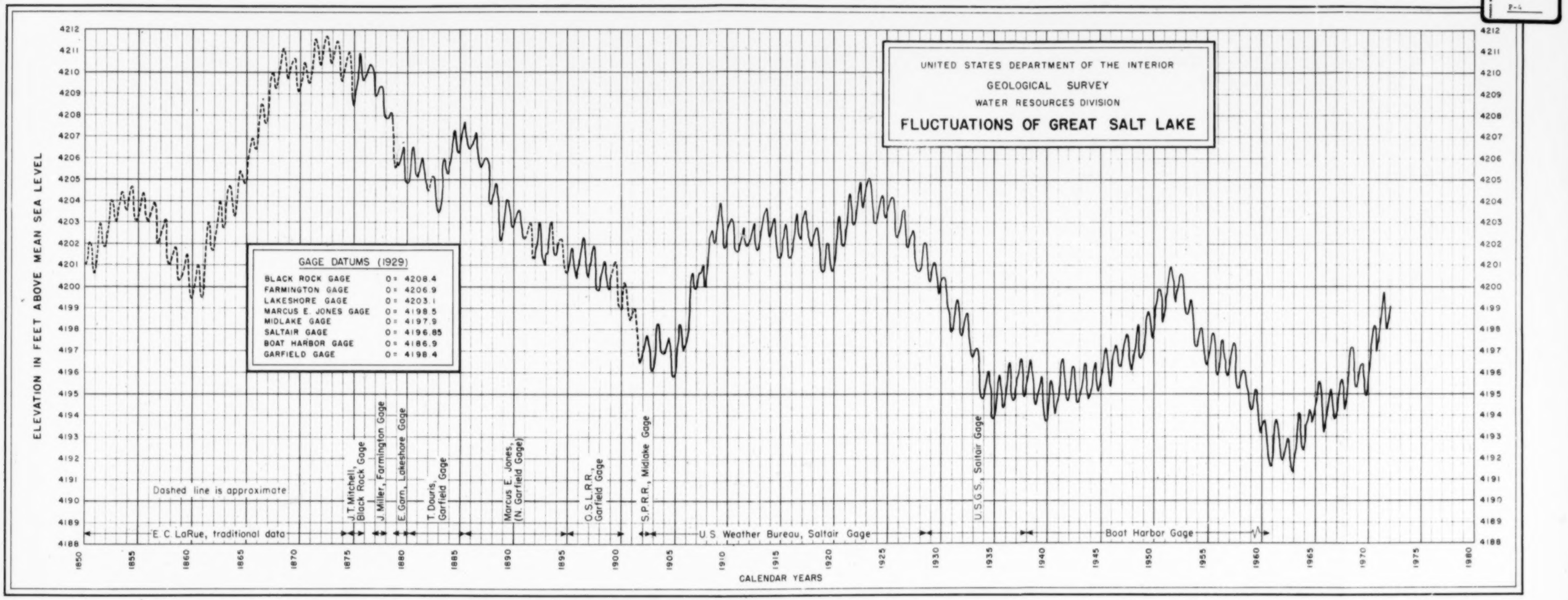
UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WATER RESOURCES DIVISION
FLUCTUATIONS OF GREAT SALT LAKE
ELEVATION IN FEET ABOVE MEAN SEA LEVEL
CALENDAR YEARS
GAGE DATUMS (1929)
BLACK ROCK GAGE 0 = 4208.4
FARMINGTON GAGE 0 = 4206.9
LAKESHORE GAGE 0 = 4203.1
MARCUS E. JONES GAGE 0 = 4198.5
MIDLAKE GAGE 0 = 4197.9
SALTAIR GAGE 0 = 4196.85
BOAT HARBOR GAGE 0 = 4186.9
GARFIELD GAGE 0 = 4198.4
Dashed line is approximate
E. C. LaRue, traditional data
J.T. Mitchell, Black Rock Gage
J. Miller, Farmington Gage
E. Garn, Lakeshore Gage
T. Douris, Garfield Gage
Marcus E. Jones, (N. Garfield Gage)
O.S.L.R.R., Garfield Gage
S.P.R.R., Midlake Gage
U.S. Weather Bureau, Saltair Gage
U.S.G.S., Saltair Gage
Boat Harbor Gage

EXHIBIT P-5

6-310-c (Rev. 5-63)

UNITED STATES DEPARTMENT OF THE INTERIOR

GEOLOGICAL SURVEY (WATER RESOURCES DIVISION)

Rating table for Great Salt Lake: Surface Area vs Stage Dated ....., 19....

from AREA x 1000 to .....; from ..... to .....

from ..... to .....; from ..... to .....

| Gage height | .00 | .01 | .02 | .03 | .04 | .05 | .06 | .07 | .08 | .09 | Difference |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Feet | Cfs | Cfs | Cfs | Cfs | Cfs | Cfs | Cfs | Cfs | Cfs | Cfs | Cfs |
| 4191.0 | 592 | 594 | 596 | 599 | 601 | 603 | 605 | 607 | 610 | 612 | 22 |
| 4192.0 | 614 | 617 | 619 | 622 | 624 | 627 | 630 | 632 | 635 | 637 | 26 |
| 4193.0 | 640 | 643 | 646 | 650 | 653 | 656 | 659 | 662 | 666 | 669 | 32 |
| 4194.0 | 672 | 676 | 680 | 684 | 688 | 692 | 696 | 700 | 704 | 708 | 40 |
| 4195.0 | 712 | 717 | 723 | 728 | 734 | 739 | 744 | 750 | 755 | 761 | 54 |
| 4196.0 | 766 | 774 | 781 | 791 | 800 | 808 | 816 | 825 | 833 | 842 | 64 |
| 4197.0 | 850 | 858 | 866 | 874 | 882 | 890 | 898 | 906 | 914 | 922 | 60 |
| 4198.0 | 930 | 937 | 944 | 952 | 959 | 966 | 973 | 980 | 988 | 995 | 72 |
| 4199.0 | 1,002 | 1,008 | 1,014 | 1,020 | 1,026 | 1,032 | 1,038 | 1,044 | 1,050 | 1,056 | 60 |
| 4200.0 | 1,062 | 1,067 | 1,073 | 1,078 | 1,083 | 1,088 | 1,094 | 1,099 | 1,104 | 1,110 | 53 |
| 4201.0 | 1,115 | 1,120 | 1,125 | 1,129 | 1,134 | 1,139 | 1,144 | 1,149 | 1,153 | 1,158 | 48 |
| 4202.0 | 1,163 | 1,168 | 1,173 | 1,177 | 1,182 | 1,187 | 1,192 | 1,197 | 1,201 | 1,206 | 48 |
| 4203.0 | 1,211 | 1,215 | 1,220 | 1,224 | 1,229 | 1,233 | 1,237 | 1,242 | 1,246 | 1,251 | 44 |
| 4204.0 | 1,255 | 1,260 | 1,264 | 1,269 | 1,274 | 1,278 | 1,283 | 1,288 | 1,293 | 1,298 | 47 |
| 4205.0 | 1,302 | 1,306 | 1,310 | 1,314 | 1,318 | 1,322 | 1,325 | 1,329 | 1,333 | 1,337 | 39 |
| 4206.0 | 1,341 | 1,345 | 1,349 | 1,354 | 1,358 | 1,362 | 1,366 | 1,370 | 1,375 | 1,379 | 42 |
| 4207.0 | 1,383 | 1,387 | 1,391 | 1,395 | 1,399 | 1,403 | 1,407 | 1,411 | 1,415 | 1,419 | 40 |
| 4208.0 | 1,423 | 1,427 | 1,432 | 1,436 | 1,440 | 1,444 | 1,449 | 1,453 | 1,457 | 1,462 | 43 |
| 4209.0 | 1,466 | 1,470 | 1,474 | 1,478 | 1,482 | 1,486 | 1,489 | 1,493 | 1,497 | 1,501 | 39 |
| 4210.0 | 1,505 | 1,509 | 1,513 | 1,517 | 1,521 | 1,526 | 1,530 | 1,534 | 1,538 | 1,542 | 41 |
| 4211.0 | 1,546 | 1,550 | 1,554 | 1,558 | 1,562 | 1,566 | 1,570 | 1,574 | 1,578 | 1,582 | 40 |
| 4212.0 | 1,586 | 1,590 | 1,594 | 1,598 | 1,602 | 1,606 | 1,609 | 1,613 | 1,617 | 1,621 | 39 |
| 4213.0 | 1,625 | 1,629 | 1,633 | 1,637 | 1,641 | 1,645 | 1,649 | 1,653 | 1,657 | 1,661 | 40 |
| 4214.0 | 1665 | | | | | | | | | | |

Computed by R.J.M. 12/16/1960; Checked by G.L.W. 12/16/1960 Remarks .....

EXHIBIT
P-9

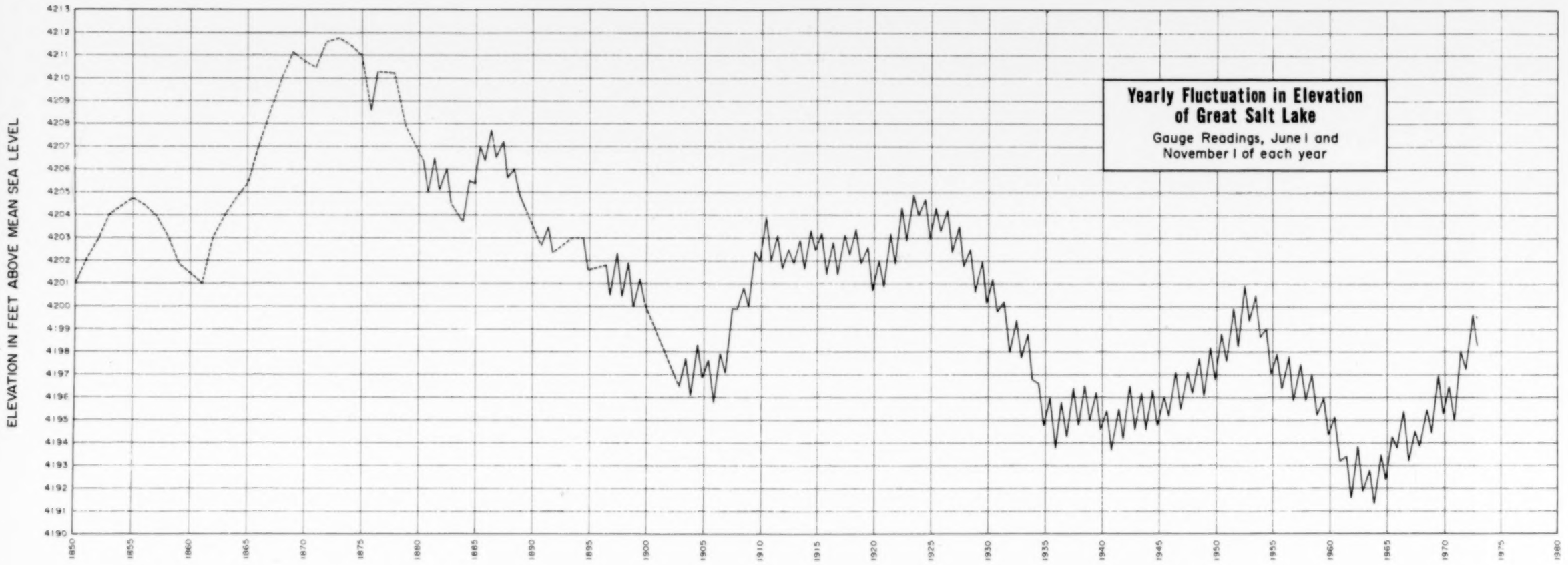
Yearly Fluctuation in Elevation of Great Salt Lake
Gauge Readings, June 1 and November 1 of each year
ELEVATION IN FEET ABOVE MEAN SEA LEVEL
4213
4212
4211
4210
4209
4208
4207
4206
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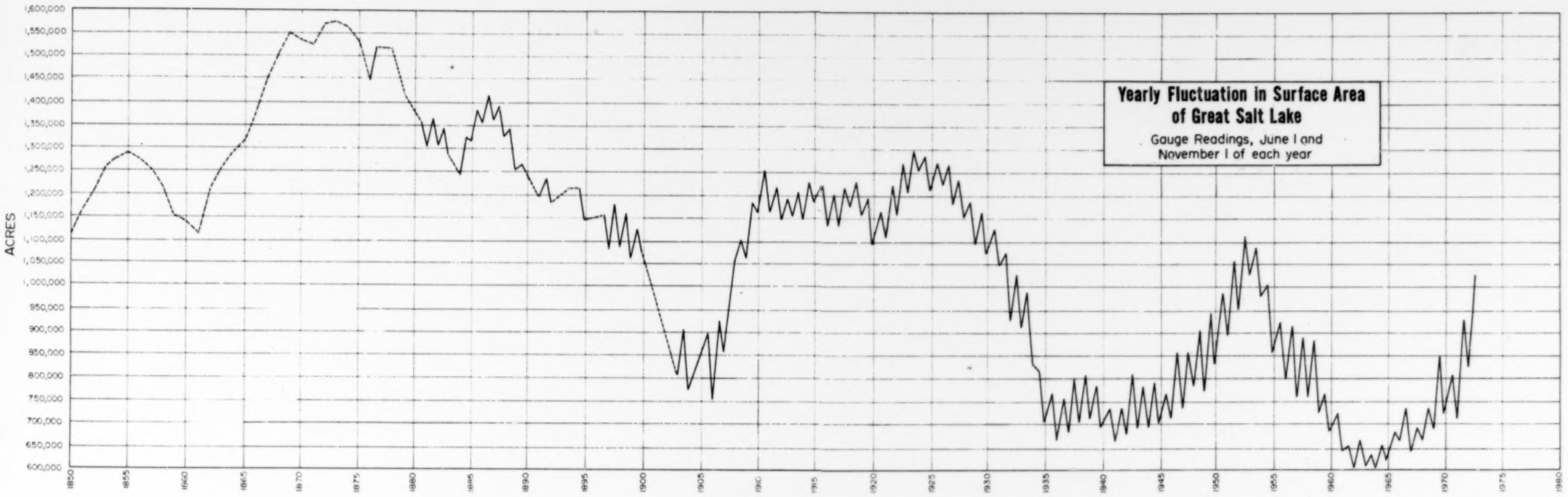
EXHIBIT
P-10


Yearly Fluctuation in Surface Area of Great Salt Lake
Gauge Readings, June 1 and November 1 of each year
ACRES
1,600,000
1,550,000
1,500,000
1,450,000
1,400,000
1,350,000
1,300,000
1,250,000
1,200,000
1,150,000
1,100,000
1,050,000
1,000,000
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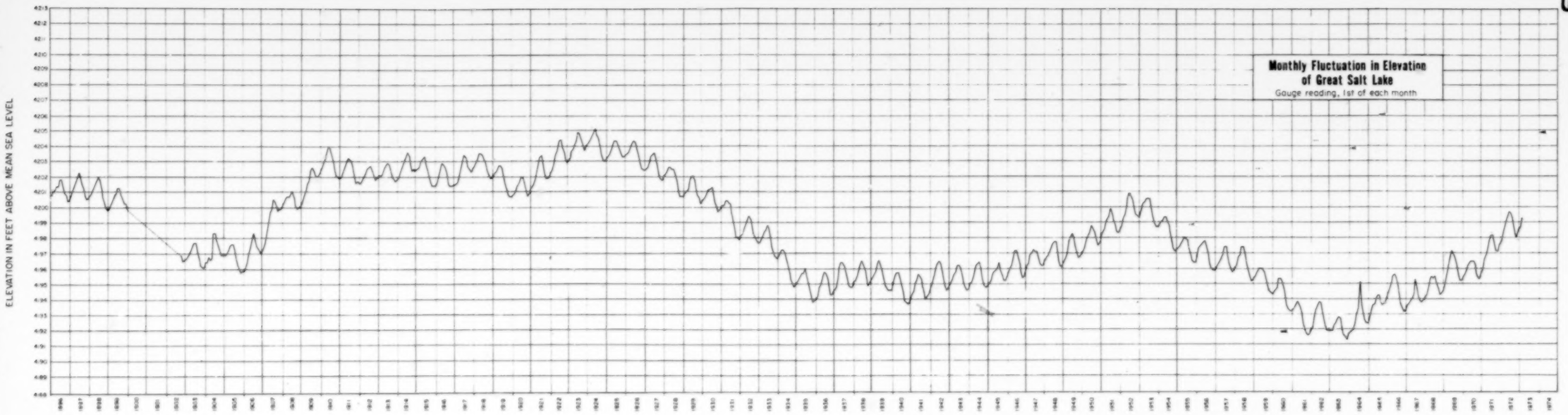

Monthly Fluctuation in Elevation
of Great Salt Lake
Gauge reading, 1st of each month
ELEVATION IN FEET ABOVE MEAN SEA LEVEL

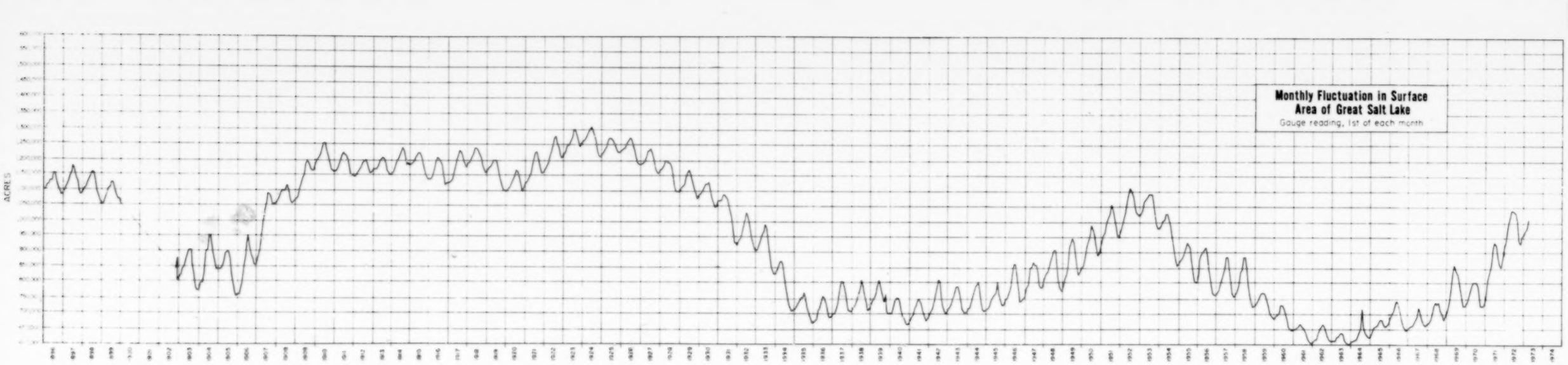
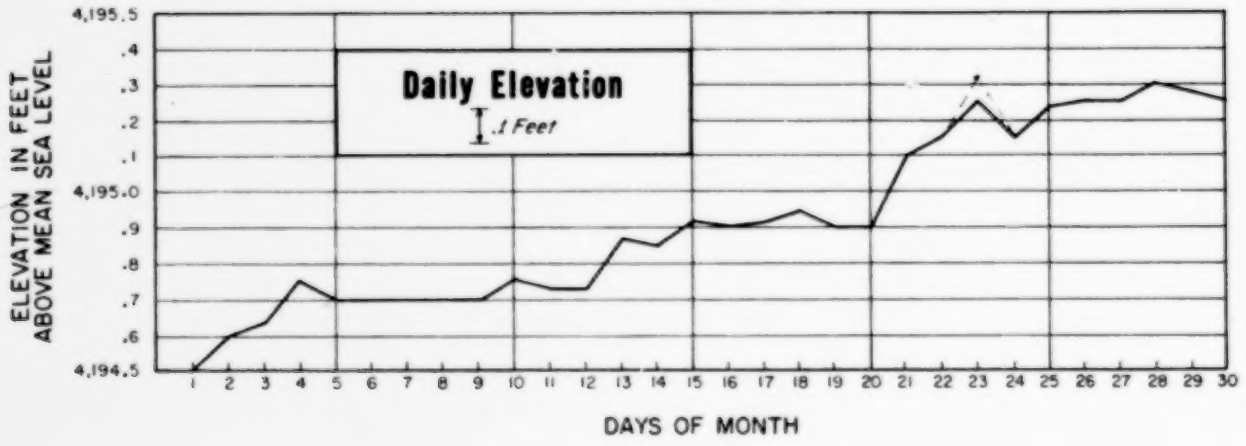
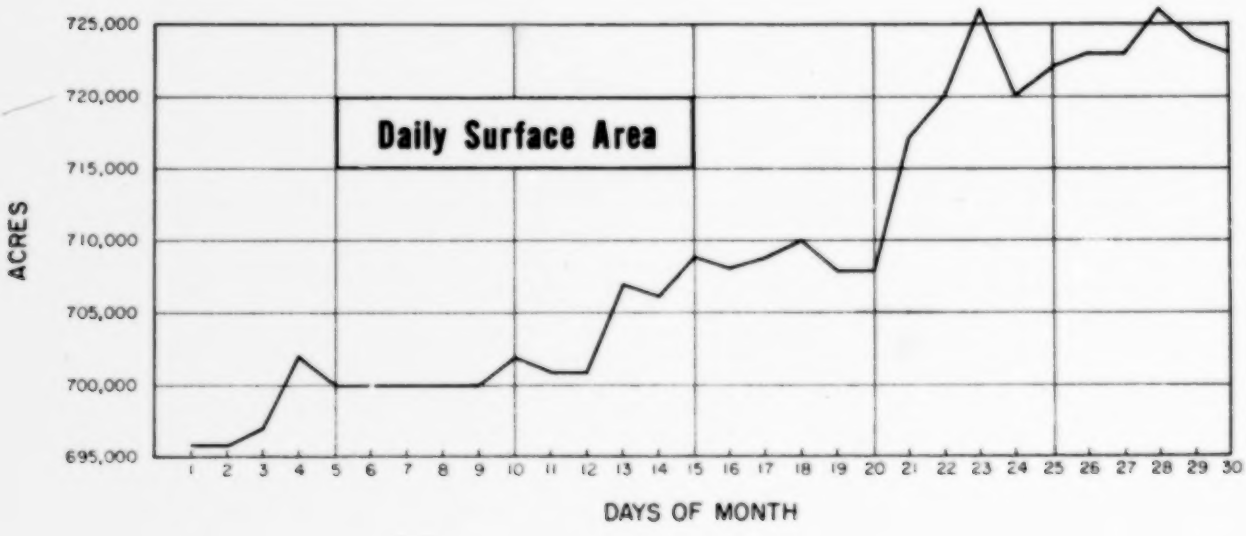
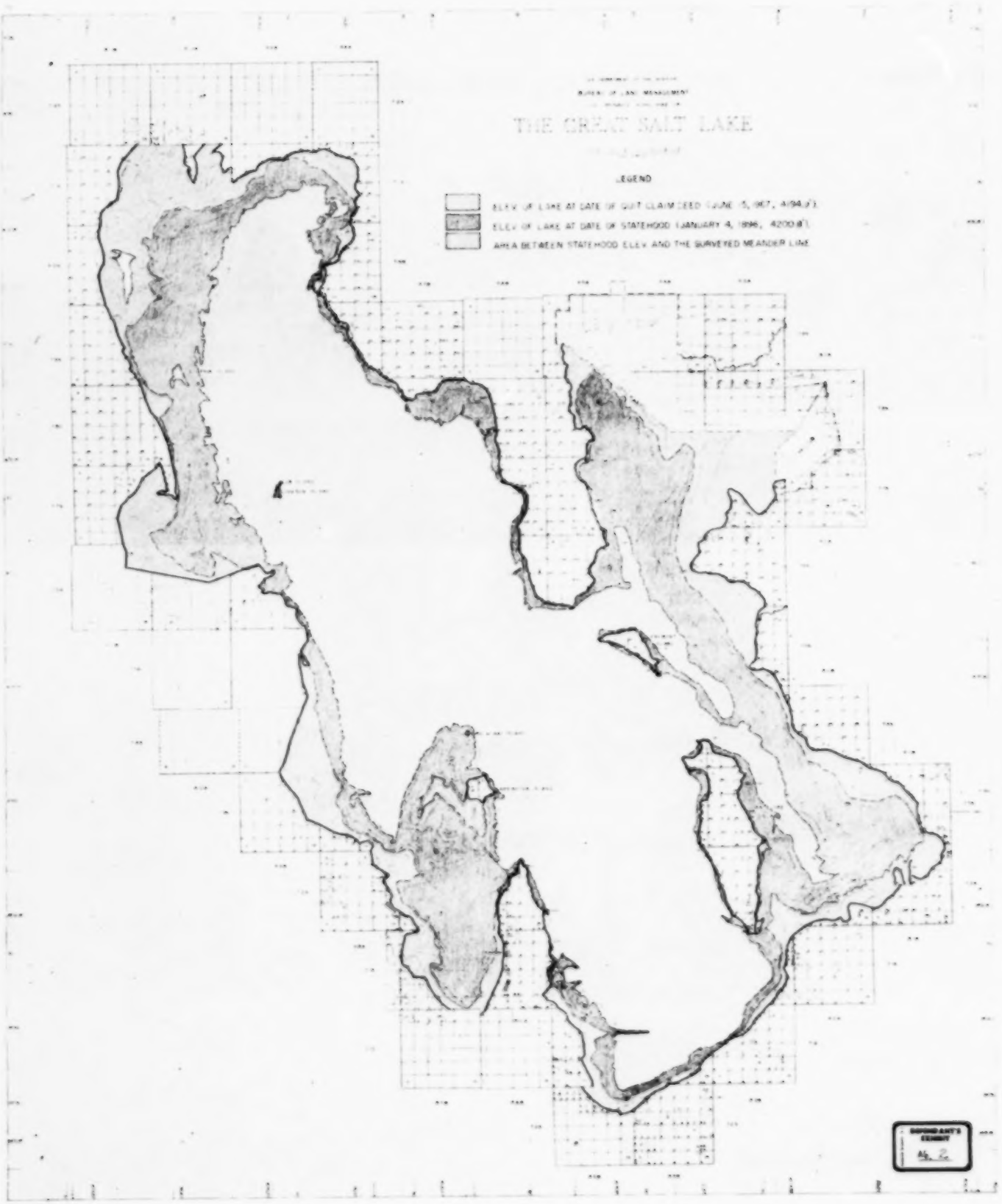

Monthly Fluctuation in Surface
Area of Great Salt Lake
Gauge reading, 1st of each month
ACRES

EXHIBIT
P-17

# Daily Fluctuation in Elevation and Surface Area of Great Salt Lake for the Month of June 1967

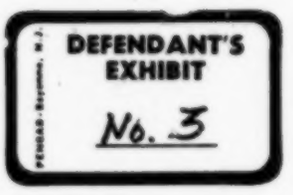



THE GREAT SALT LAKE
LEGEND

ANNUAL CHANGE IN ALTITUDE OF GREAT SALT LAKE, UTAH

| Year | Average altitude (feet above msl) | Annual change (feet) | Year | Average altitude (feet above msl) | Annual change (feet) |
|---|---|---|---|---|---|
| 1851 | 4201.35 | | 1886 | 4207.00 | 0.55 |
| 1852 | 4202.10 | 0.75 | 1887 | 4206.40 | -.60 |
| 1853 | 4203.25 | 1.15 | 1888 | 4205.20 | -1.20 |
| 1854 | 4203.80 | .55 | 1889 | 4203.60 | -1.60 |
| 1855 | 4203.70 | -.10 | 1890 | 4203.40 | -.20 |
| 1856 | 4203.60 | -.10 | 1891 | 4203.10 | -.30 |
| 1857 | 4203.10 | -.50 | 1892 | 4202.25 | -.85 |
| 1858 | 4202.15 | -.95 | 1893 | 4202.00 | -.25 |
| 1859 | 4201.15 | -1.00 | 1894 | 4202.30 | .30 |
| 1860 | 4200.50 | -.65 | 1895 | 4201.65 | -.65 |
| 1861 | 4200.25 | -.25 | 1896 | 4201.10 | -.55 |
| 1862 | 4202.00 | 1.75 | 1897 | 4201.45 | .35 |
| 1863 | 4203.00 | 1.00 | 1898 | 4201.10 | -.35 |
| 1864 | 4204.00 | 1.00 | 1899 | 4200.65 | -.45 |
| 1865 | 4204.90 | .90 | 1900 | 4200.20 | -.45 |
| 1866 | 4206.40 | 1.50 | 1901 | 4199.40 | -.80 |
| 1867 | 4207.90 | 1.50 | 1902 | 4197.60 | -1.80 |
| 1868 | 4209.60 | 1.70 | 1903 | 4197.00 | -.60 |
| 1869 | 4210.45 | .85 | 1904 | 4197.10 | .10 |
| 1870 | 4209.90 | -.55 | 1905 | 4197.10 | 0 |
| 1871 | 4210.00 | .10 | 1906 | 4196.83 | -.27 |
| 1872 | 4211.00 | 1.00 | 1907 | 4198.69 | 1.86 |
| 1873 | 4211.20 | .20 | 1908 | 4200.38 | 1.69 |
| 1874 | 4210.60 | -.60 | 1909 | 4201.24 | .86 |
| 1875 | 4210.15 | -.45 | 1910 | 4202.93 | 1.69 |
| 1876 | 4209.80 | -.35 | 1911 | 4202.50 | -.43 |
| 1877 | 4210.00 | .20 | 1912 | 4202.06 | -.44 |
| 1878 | 4208.80 | -1.20 | 1913 | 4202.32 | .26 |
| 1879 | 4207.20 | -1.60 | 1914 | 4202.59 | .27 |
| 1880 | 4205.70 | -1.50 | 1915 | 4202.66 | .07 |
| 1881 | 4205.65 | -.05 | 1916 | 4202.00 | -.66 |
| 1882 | 4205.40 | -.25 | 1917 | 4202.21 | .21 |
| 1883 | 4204.65 | -.75 | 1918 | 4202.89 | .68 |
| 1884 | 4204.80 | .15 | 1919 | 4202.13 | -.76 |
| 1885 | 4206.45 | 1.65 | 1920 | 4201.22 | -.91 |



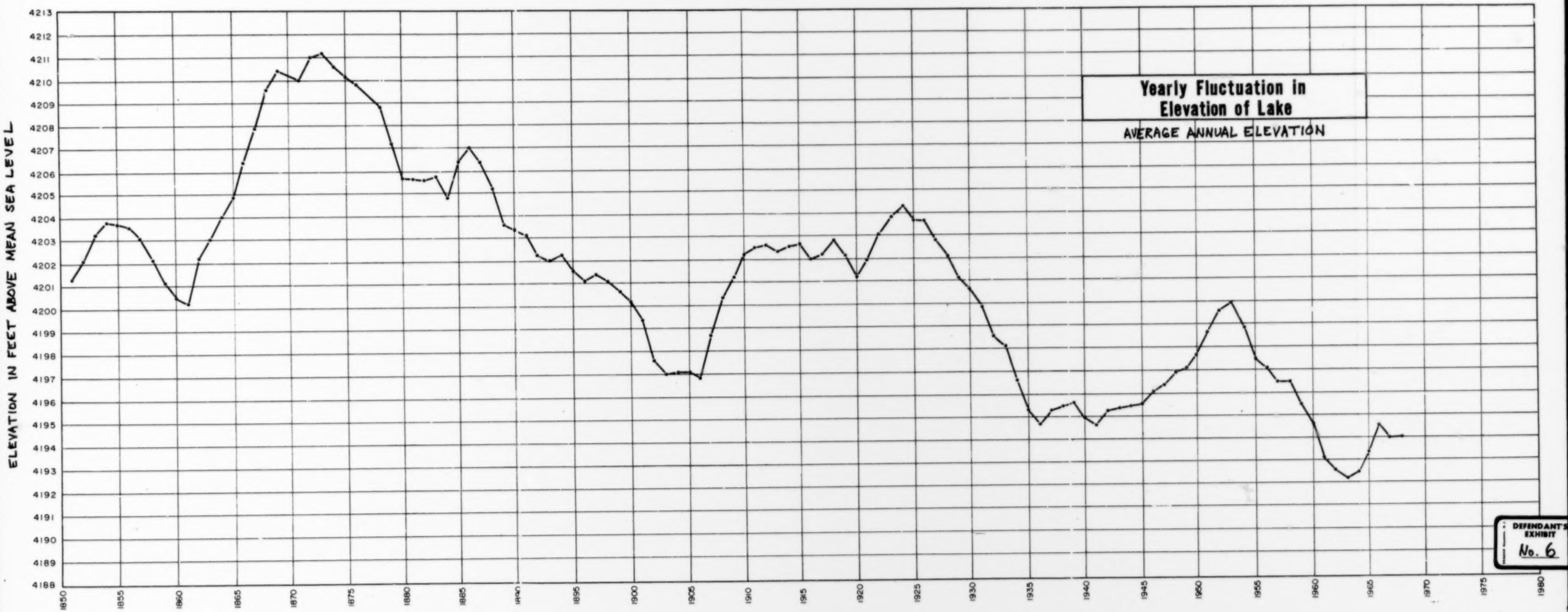
ANNUAL CHANGE IN ALTITUDE OF GREAT SALT LAKE--continued

| Year | Average altitude (feet above msl) | Annual change (feet) | Year | Average altitude (feet above msl) | Annual change (feet) |
|---|---|---|---|---|---|
| 1921 | 4201.98 | 0.76 | 1945 | 4195.51 | 0.01 |
| 1922 | 4203.05 | 1.07 | 1946 | 4196.16 | .65 |
| 1923 | 4203.88 | .83 | 1947 | 4196.49 | .33 |
| 1924 | 4204.31 | .43 | 1948 | 4196.97 | .48 |
| 1925 | 4203.66 | -.65 | 1949 | 4197.12 | .15 |
| 1926 | 4203.64 | -.02 | 1950 | 4197.75 | .63 |
| 1927 | 4202.80 | -.84 | 1951 | 4198.74 | .99 |
| 1928 | 4202.05 | -.75 | 1952 | 4199.62 | .88 |
| 1929 | 4201.19 | -.86 | 1953 | 4199.94 | .32 |
| 1930 | 4200.67 | -.52 | 1954 | 4198.83 | -1.11 |
| 1931 | 4199.88 | -.79 | 1955 | 4197.50 | -1.33 |
| 1932 | 4198.55 | -1.33 | 1956 | 4197.09 | -.41 |
| 1933 | 4198.10 | -.45 | 1957 | 4196.55 | -.54 |
| 1934 | 4196.66 | -1.44 | 1958 | 4196.50 | -.05 |
| 1935 | 4195.30 | -1.36 | 1959 | 4195.58 | -.92 |
| 1936 | 4194.77 | -.53 | 1960 | 4194.63 | -.95 |
| 1937 | 4195.36 | .59 | 1961 | 4193.19 | -1.44 |
| 1938 | 4195.56 | .20 | 1962 | 4192.68 | -.51 |
| 1939 | 4195.64 | .08 | 1963 | 4192.22 | -.46 |
| 1940 | 4194.95 | -.69 | 1964 | 4192.50 | .28 |
| 1941 | 4194.68 | -.27 | 1965 | 4193.42 | .92 |
| 1942 | 4195.34 | .66 | 1966 | 4194.62 | 1.20 |
| 1943 | 4195.44 | .10 | 1967 | 4194.01 | -.61 |
| 1944 | 4195.50 | .06 | | | |

For the period 1851-1967:

Average annual change = 0.69 feet
Average monthly change = 0.06 feet

Prepared by the U.S. Geological Survey under the direction of T. Arnow, District Chief, Water Resources Division, Utah
January 16, 1973


Yearly Fluctuation in Elevation of Lake
AVERAGE ANNUAL ELEVATION
ELEVATION IN FEET ABOVE MEAN SEA LEVEL
4213
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DEFENDANT'S EXHIBIT
No. 6

IN THE

# Supreme Court of the United States

No. 31, Original

OCTOBER TERM, 1967

STATE OF UTAH, PLAINTIFF

v.

UNITED STATES OF AMERICA, DEFENDANT

## REPORT OF SPECIAL MASTER

CHARLES FAHY,
*Senior Circuit Judge,*
*Special Master.*

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| IV. | History and General Characteristics of the Great Salt Lake | 7 |
| V. | Factual Characteristics of the Reliction Process | 10 |
| VI. | The Special Master is Unable to Find that the Exposure of the Bed of the Great Salt Lake June 15, 1967, the Date of the Quitclaim Deed, Had Come About by a Gradual and Imperceptible Process | 14 |
| VII. | The Rationales of Reliction, In Large Measure Those of Accretion, Are Not Supported By the Facts of the Present Case | 20 |
| | Findings of Fact | 27 |
| | Conclusions of Law | 31 |
| | Proposed Decree | 32 |
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IN THE

# Supreme Court of the United States

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No. 31. Original

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OCTOBER TERM, 1967

---

STATE OF UTAH, PLAINTIFF

v.

UNITED STATES OF AMERICA, DEFENDANT

---

## REPORT OF SPECIAL MASTER

---

*To the Chief Justice and Associate Justices of the Supreme Court of the United States:*

### I. INTRODUCTION

This Report of the Special Master is concerned with another stage of the controversy between the State of Utah and the United States over the ownership of certain land, and its content, within the surveyed meander line[1] of the Great Salt Lake.

---

[1] The meander line of the Great Salt Lake is the line duly surveyed prior to and in accordance with section 1 of the Act of June 3, 1966, 80 Stat. 192, which provides:

> That the Secretary of the Interior shall within six months of the date of the passage of this Act complete the public land survey around the Great Salt Lake in the State of

Pursuant to the terms of the Act of Congress of June 3, 1966, 80 Stat. 192, as amended, 80 Stat. 349, the Secretary of the Interior on June 15, 1967, by quitclaim deed conveyed to Utah all interests of the United States in these lands, including brines and minerals in solution in the brines, or precipitated or extracted therefrom,[2] conditioned upon payment by Utah to the United States of the market value of the interests covered by the deed should it be determined that they actually belonged to the United States. To have that question judicially determined Utah adopted one of the alternative courses authorized by the Act by filing this original suit in the Supreme Court seeking a decree to quiet its title as against the United States to the lands and content in dispute. See section 5(b) of the Act.

Several phases of the over-all controversy have been decided by the Court. In *Utah* v. *United States*, 394 U.S. 89 (1969), the Court denied intervention of a private claimant, Morton International, Inc., approving the recommendation of the late Senior Circuit Judge J. Cullen Ganey, Special Master. In *Utah* v. *United States*, 403 U.S. 9 (1971), again on the basis of the Report of Judge Ganey, the Court held that the Lake was navigable when the State of Utah was admitted to the Union on January 4, 1896, and that, as a consequence, under the equal-footing doctrine,[3] title to the bed of the Lake at state-

---

Utah by closing the meander line of that Lake, following as accurately as possible the mean high water mark of the Great Salt Lake used in fixing the meander line on either side of the unsurveyed area.

[2] When "land", "lands", "bed of the Lake" appear in this Report to describe the interests involved the words are used to include the brines and minerals in solution in the brines or precipitated or extracted therefrom.

[3] *Pollard's Lessee* v. *Hagen*, 44 U.S. (3 How.) 212, 221-23, 228-30 (1845); *Bonelli Cattle Co.* v. *Arizona*, 414 U.S. 313

hood vested in Utah. Thereupon the Court, in *Utah* v. *United States*, 406 U.S. 484, entered its decree of May 22, 1972, in the form of an injunction against the United States, but in substance quieting in Utah, as against the United States, the title to the bed of the Lake lying below its water's edge on June 15, 1967, the date of the quitclaim deed, with exceptions not now material, and to the natural resources and living organisms therein or extracted therefrom. The Court also held that Utah is not required to pay the United States for the interests thus described in the decree.

The decree of May 22, 1972, by its paragraph 3, brings us to the present problem. It provides as follows:

> 3. The basic question yet to be determined in this case is whether prior to June 15, 1967, the claimed doctrine of reliction applies and, if so, whether the doctrine of reliction vests in the United States, and thus divests the State of Utah, of any right, title or interest to any or all of the exposed shorelands situated between the water's edge on June 15, 1967, and the meander line of the Great Salt Lake as duly surveyed prior to or in accordance with § 1 of the Act of June 3, 1966, 80 Stat. 192. A Special Master will be appointed by the Court to hold such hearings, take such evidence and conduct such proceedings as he deems appropriate and, in due course, to report his recommendations to the Court.

406 U.S., at 484-5. Judge Ganey in the meantime having died the Court appointed the present Special Master, with the authority thus noted. 406 U.S. 940 (1972).

---

(1973). Under this doctrine, in the absence of a congressional condition to the contrary, a State, upon its admission to the Union, acquires title to the bed of navigable waters within the State, as had the thirteen original colonies as successors to the rights of the British Crown.

Not at issue in this litigation are the claims of private persons, vendees and patentees, to about 275,000 acres adjacent to the Lake.

Lake of 8.28 inches "would inundate about 50,000 acres of shoreland" (R. 29), inasmuch as the inundation of about 50,000 acres would occur *only* when a change took place at the level of about 4198.5 feet above mean sea level (the average level of the Lake since statehood), whereas generally a lesser number of acres is inundated by changes of 8.28 inches at both lower or higher elevations as shown in Exhibit P–5 (reproduced as a part of the Report).

3. The United States excepts to the characterization in Finding of Fact 14 that the effect of mountains upon the movement of the water along the shoreland is "not reflected in the calculation described in Finding 13" (R. 30), inasmuch as the calculation is an average which inherently includes areas where the rate of movement is both greater and smaller than the stated average.

4. The United States excepts to the characterization in Finding of Fact 15 that the average movement along the shoreland of 1½ inches per hour is "to an unascertained degree an under-estimate of the rate of movement over extensive areas of shore" (R. 30). The movement over the flattest part of the shore during the most extreme year amounted to only 15 inches per hour (Br. for the United States Before the Special Master, p. 7, n. 7). This is the greatest possible extent to which the calculated average in Finding 13 is an "under-estimate."

5. The United States excepts to the determination in Finding of Fact 15 that the average movement of 1½ inches per hour, or the maximum historical movement of 15 inches per hour, is a rate of movement which is not imperceptible.

6. The United States excepts to the determination in Finding of Fact 18 that the progress "of a recession or inundation," unobscured by "constant fluctuations," cannot be found to "be imperceptible as it occurs" (R. 31).

7. The United States excepts to the determination in Finding of Fact 19 that the land exposed between statehood and the time of the quitclaim deed "was not an addition of a reasonably permanent or stable character" (R. 31).

III

With respect to the Proposed Decree of the Special Master appearing at pages 32–34 of his Report:

1. The United States excepts to the failure of the Special Master to include in the preamble of paragraph 1 the words "such as" in the phrase "subject to any regulations which the Congress may impose in the interest of navigation or pollution control" (R. 32–33), inasmuch as the Decree entered by this Court on May 22, 1972, 406 U.S. 484, uses the phrase "subject to any regulations which the Congress may impose, *such as* in the interest of navigation or pollution control [emphasis added]."

2. The United States excepts to the Proposed Decree of the Special Master in its entirety (R. 32–34), insofar as it grants the relief sought by Utah and denies the relief sought by the United States.

Respectfully submitted.

ROBERT H. BORK,
*Solicitor General.*

MAY 1974.

# In the Supreme Court of the United States

OCTOBER TERM, 1973

---

No. 31, ORIGINAL

STATE OF UTAH, PLAINTIFF

*v.*

UNITED STATES OF AMERICA

---

**BRIEF FOR THE UNITED STATES IN SUPPORT OF EXCEPTIONS TO THE REPORT OF THE SPECIAL MASTER FILED APRIL 15, 1974**

---

## I. INTRODUCTION

This litigation is authorized by the Great Salt Lake Lands Act, 80 Stat. 192. In order to assure a permanent boundary between state and federal ownership of land in the Great Salt Lake Basin, Congress provided that the surveyed meanderline of the Great Salt Lake should become the boundary between state and federal ownership. To that end, the United States would quitclaim to Utah all of its interests below the meanderline,[1] and Utah, in partial compensation, would quitclaim to the United States all of its interests above the meanderline. These mutual obligations exist without regard to whether land on either side of the meanderline was exposed or inundated by the water (80 Stat. 192, Secs. 2 & 4). Utah agreed to pay

[1] The meanderline was surveyed at several different dates, but in many places approximates the level of the Lake in 1855.



548-686

an assessed valuation for whatever land this Court determines that the United States owned below the meanderline as of the date of the quitclaim deed, June 15, 1967. Should Utah fail to do so within two years of the valuation, the mutual conveyances are cancelled, and each party would own those lands to which it was entitled in the absence of the Act.

In an earlier stage of this litigation, this Court held that the Great Salt Lake was navigable at the time of Utah's admission to the Union, and that the State therefore acquired title to the bed of the Lake by operation of the equal footing principle. 403 U.S. 9. Thus, the State of Utah is not obliged to pay the United States for any of the lands lying below the level of the Lake on June 15, 1967. 406 U.S. 484.

The question to be determined at this stage of the litigation is whether the lands exposed by the recession of the waters of the Great Salt Lake between statehood (January 4, 1896) and the date of the quitclaim deed from the United States (June 15, 1967) belonged to the United States, where it is the upland owner, by operation of the doctrine of reliction. If so, Utah is obliged to pay the United States for the lands so conveyed on June 15, 1967.[2]

[2] Should this Court agree with the Special Master that the doctrine of reliction is not applicable to Great Salt Lake and that Utah therefore has continued, notwithstanding any recession of the waters of the Lake, to own all lands within the boundary of the Lake at the time of statehood, it will then become necessary to resolve the dispute among the parties concerning the boundary of the Lake at statehood. The State contends that the surveyed meanderline represents the correct boundary of the Lake, and that therefore the quitclaim deed executed by the United States on June 15, 1967, did not enhance the State's title; in that case, the State would owe no payment to the United States under the Act.

## II. QUESTIONS PRESENTED

1. Whether the fact that rapid daily and seasonal changes occur along the shorelands of the Great Salt Lake and the fact that exposed shorelands may someday be reinundated render the doctrine of reliction inapplicable to the Great Salt Lake.

2. Whether, between statehood and the date of the quitclaim deed, portions of the bed of the Great Salt Lake were exposed by a gradual and imperceptible process.

## III. STATEMENT

In this stage of the litigation, there is little factual dispute concerning the history and characteristics of the Great Salt Lake.[3]

The Great Salt Lake occupies the lowest part of a flat, closed basin. The Lake is approximately 70 miles long and 30 miles wide. Its maximum depth is about

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On the other hand, the United States contends that the boundary of the Lake on January 4, 1896, is defined by the water's edge at that date (or some seasonally adjusted line derived therefrom), so that it remained the owner of the substantial areas lying between the water's edge at statehood and the surveyed meanderline, much of the Lake having been surveyed (and the meanderline established) at times when the elevation of the Lake was substantially higher than at statehood.

If, on the other hand, the Court agrees with us that the doctrine of reliction applies, only the technical matter of determining the boundary of the Lake on the date of the quitclaim deed will remain, and issues relating to the meanderline will drop out of the case and will not require further litigation.

[3] See R. 27, n. 24. The principal witness at trial was a joint witness, Mr. Theodore Arnow, United States Geological Survey (U.S.G.S.), Utah. Mr. Arnow's testimony (Tr. 28–61) consisted mainly of a brief explanation of the history of the Lake and the cause of its fluctuations. The detailed history of the fluctuations is set forth in plaintiff's Exhibits, which are derived from U.S.G.S. records.

34 feet. At some points, the shorelands surrounding the Great Salt Lake are extremely flat, while at others, mountain ranges project through the Lake. As a result, a change in the level of the Lake may inundate or expose considerable shorelands in some areas and no shorelands at all in others (Tr. 33–34).

The Great Salt Lake has no outlet. The only way the Lake loses water (outflow) is by evaporation. It receives water (inflow) from tributaries and from rainfall on the Lake. Since outflow rarely exactly equals inflow, the level of the Great Salt Lake fluctuates (Tr. 36–38; Ex. P–4).

Many variable but interrelated physical factors affect the level of the Great Salt Lake. The rate of inflow is for the most part a function of precipitation (Tr. 40). The rate of evaporation is a function of the wind, temperature, salinity, and surface area of the Lake. In addition, inflow affects salinity and surface area: As the level of the Lake rises, the rate of evaporation increases because there is more surface from which to evaporate, and conversely. Heavy inflow decreases the salinity of the water, which also increases evaporation. Thus, the level of the Lake tends to be self-stabilizing (Tr. 48–54).

The level of the Great Salt Lake is affected by three general types of fluctuations: annual, seasonal, and daily. Only the annual fluctuations reflect a change in the ordinary high water mark—the boundary that is subject to modification by the doctrine of reliction.

Daily fluctuation is caused by the action of the wind and is not a change in the level of the Lake. The wind can push up as much as two feet of water in one

part of the Lake while the level goes down commensurately elsewhere (Tr. 46–47).

The seasonal fluctuation reoccurs each year in essentially the same pattern and is the dominant element in changes in lake elevation (Cf. Exs. P–4, P–9, P–11). It is caused principally by regular changes in temperature and precipitation. Over the hot, dry summer the level of the Lake declines. As the temperature cools, the seasonal low occurs, usually in October or November. Maximum precipitation occurs in late fall and early spring, and the level of the Lake rises. As the temperature increases in the late spring, snowmelt runoff occurs. The seasonal high usually occurs in May or June, depending upon the coolness of the spring, again followed by a decline over the hot, dry summer (Tr. 48–49). These cyclical seasonal fluctuations are not in themselves changes in the boundary of the Lake.[4]

The annual change is a product of every physical factor affecting the level of the Great Salt Lake. It is measured by differences in the "average yearly stage" of the Lake, which is the average of the levels of the Lake at regular intervals over a 12-month cycle (Ex. P–18, p. 4). This is comparable to the 18.6 year cycle used in computing tidal boundaries. See *Borax, Ltd.* v. *Los Angeles,* 296 U.S. 10, 26–27.

Annual changes in the level of the Great Salt Lake have generally been less than 1 foot per year. Since statehood, the average annual change has been about 8 inches (Ex. D–3). The greatest annual change occurred in 1907, when the level of the Lake rose 1.86 feet or less than 1/16 inch per day. Since that time

[4] See discussion at pp. 15–17, *infra.*

the Lake has experienced an annual change of more than a foot on only ten occasions (Ex. D–3; Ex. P–18).[5]

Even though the annual fluctuations have not been great, small changes in the level of the Lake can inundate or expose hundreds of feet of shoreland (Ex. D–4) because the shorelands in some parts of the Great Salt Lake are extremely flat (see Exs. D–1 and D–2). As the level of the Lake changes, the movement of the water's edge in these flat areas is almost in a horizontal direction.

The average annual movement of the boundary of the Great Salt Lake has been quite small. Since statehood, the average Lake level has been about 4198.5 feet [6] (Ex. P–18). At this level, the average annual change in water level of .69 feet (Ex. D–3) would expose or inundate about 50,000 acres of shorelands (Ex. P–5). However, in a lake with a shoreline of 350 miles (1973 World Almanac, p. 474) this means an average movement along the shore of less than 1,200 feet (1178.5).[7] Such a movement is barely 3 feet per day, or a little more than 1½ inches per hour.

Similar calculations can be made for extreme circumstances. For example, the flattest shorelands in the entire perimeter of the Lake are located in the northwest corner (Ex. D–1; see B–B′ in Ex. D–5). The greatest annual change occurred between 1906 and 1907 when the level of the Lake rose from 4196.83

[5] Ex. D–3 and Ex. P–18 contain data only through 1967, the year of the quitclaim deed.

[6] All levels given are distances above mean sea level.

[7] 50,000 acres = 78⅛ sq. mi. 78⅛ sq. mi. divided over a 350 mile shore is .2232 mi., which equals 1178.5 feet.

to 4198.69 feet above mean sea level (Ex. D–3). As shown by cross-section B–B′, about 2.2 miles of shoreland, or 11,616 feet, were inundated in that area in one year. This most extreme movement in the most extreme year represents a "horizontal" movement of about 31 feet per day or only 15 inches per hour (Ex. D–4). And even in the most extreme year, many other areas along the shore remained relatively unaffected. At the area shown by cross-section D–D′, only 0.2 miles, or 1,056 feet, were inundated over the same year. This represents less than 3 feet per day or 1½ inches per hour (Ex. D–4). Values for the most extreme movement in an average year (which the master found unascertained in Finding of Fact 14) and the average movement in the most extreme year can be similarly calculated. Both would lie between 1½ and 15 inches per hour.

Long-term trends in climate have resulted in general upward or downward trends in the level of the Lake (Tr. 53). The evidence shows that on the day of statehood the level of the Great Salt Lake was 4200.8 feet,* and was approaching the bottom of a long downward trend. The average yearly stage of the Lake bottomed in 1903 at 4197.00 feet, and in 1910 reached the top of an upward trend. For about the next 15 years, the level of the Lake remained stable, fluctuating above the statehood level at 4202–4203 feet. In 1924 a downward trend began, which bottomed in 1936 at 4194.77 feet. For the next ten

* The Master's finding that the level was 4200.2 feet is not supported by the evidence. See Exs. P–3, P–11.

years the level of the Lake again remained relatively stable at about 4194.5 to 4195.5 feet. In 1946 the level of the Lake began a rise which peaked in 1953 just below the statehood level, only to fall to the all-time low of 4192.22 feet in 1963. At the time of the trial the level of the Lake was rising and had almost reached statehood level (Ex. P–4; Ex. P–18; Ex. D–3; Ex. D–6). We are informed by the United States Geological Survey that the Lake is now above the statehood level. The May 24, 1974, level was 4201.4 feet.

Between statehood and the date of the quitclaim deed from the United States, the level of the Lake fell from 4200.8 feet (January 4, 1896) to 4194.9 feet (June 15, 1967). As a result, the water's edge moved inward and approximately 396,000 acres of shorelands were exposed around the Great Salt Lake (Ex. P–5).

## ARGUMENT

The Special Master correctly concluded that federal rather than state law applies to determination of the boundary here in question (R. 5–7), relying on *Bonelli Cattle Co.* v. *Arizona,* 414 U.S. 313. His Report in general correctly states the federal law of accretion, which essentially guarantees to the upland owner title to adjoining riparian land that is formed by "gradual and imperceptible" processes (R. 10–14). See *Bonelli, supra,* 414 U.S. at 325–326, citing *Philadelphia Co.* v. *Stimson,* 223 U.S. 605, 624.

We submit, however, that in applying this standard, the Special Master made two errors of law. He regarded perceptible changes caused by seasonal factors

as affecting the boundary of the Lake and, because they were perceptible, as negating the applicability of reliction (R. 17–20). And, secondly, he held that even if the movement were gradual and imperceptible, reliction would not apply if the land uncovered was not "reasonably permanent or stable" in the sense that it was subject to reinundation, years or decades later (R. 20, 23–24). As we show below, however, the principle of reliction requires only that a change be gradual and imperceptible as measured without regard to ephemeral or seasonal factors. We further show that the record establishes that the changes in the boundary of the Great Salt Lake have been gradual and imperceptible. Finally, we show that analysis of the public benefit of the parties here provides no reason to change the established rule.

I. PERCEPTIBLE AND EXTENSIVE TEMPORARY OR SEASONAL MOVEMENTS OF A PHYSICAL RIPARIAN BOUNDARY DO NOT AFFECT THE LEGAL BOUNDARY AND THUS DO NOT DEFEAT THE APPLICABILITY OF THE DOCTRINE OF RELICTION

The Special Master takes special note in his report of data showing extensive seasonal changes in the area of the Lake (R. 17, par. 1) and minor but continuous daily fluctuations (R. 17–18). He uses this to indicate that when the "actual effect on the shorelands of such a change" is perceptible, at any time, then the doctrine of reliction cannot apply. This is not the law.

The boundary does not fluctuate with seasonal or obviously temporary changes. As the Court observed in *Alabama* v. *Georgia*, 23 How. 505, 515:

> * * * the bed * * * is that portion of its soil which is alternately covered and left bare, as there may be an increase or diminution in the supply of water, and which is adequate to contain it at its average and mean stage during the entire year, *without reference to the extraordinary freshets of the winter or spring, or the extreme droughts of the summer or autumn.* [Emphasis added.]

See also *Sapp* v. *Frazier,* 51 La. Ann. 1718, 26 So. 378, 380; *Hillebrand* v. *Knapp,* 65 S.D. 414, 274 N.W. 821, 823; *Anderson* v. *Ray,* 37 S.D. 17, 156 N.W. 591, 593.

Similarly, the movement of the water's edge during the annual flood stage of the Colorado River may well have been perceptible, but that movement did not affect the location of the ordinary high water mark. See *United States* v. *Claridge,* 416 F. 2d 933 (C.A. 9); *Arizona* v. *Bonelli Cattle Co.,* 107 Ariz. 465, 489 P. 2d 699, reversed on other grounds, 414 U.S. 313. And this Court has held that continual fluctuations do not prevent the application of the doctrine of reliction to more permanent changes, stating in *Philadelphia Co.* v. *Stimson, supra,* 223 U.S. at 625–626:

> * * * the general principle of accretion * * * applies * * * notwithstanding the extent and rapidity of the changes *constantly* effected. *Jefferis* v. *East Omaha Land Co.,* [314 U.S. 178]; *Jones* v. *Soulard,* 24 How. 41; *Saulet* v. *Shepherd,* 4 Wall. 502; *County of St. Clair* v. *Lovingston, supra; St. Louis* v. *Rutz,* [138 U.S. 226.] * * * *Nebraska* v. *Iowa,* [143 U.S. 359] * * *." [Emphasis added.]

Contrary to this rule, the Special Master here erroneously concluded that because of the constant fluctuations of the level of the Great Salt Lake, the doctrine of reliction does not apply. The same argument was rejected in *Nebraska* v. *Iowa,* 143 U.S. 359, involving another famous body of water, the Missouri River, wherein the Court stated (*id.* at 367, 369–370):

> * * * It is contended, however, that the doctrine of accretion has no application to the Missouri River, on account of the *rapid and great changes constantly going on* in respect to its banks; but the contrary has already been decided by this court in *Jefferis* v. *Land Company,* 134 U.S. 178, 189. [Emphasis added.]
>
> * * * * *
>
> Our conclusions are that, notwithstanding the rapidity of the changes * * * the law of accretion controls * * *.

See also Beck, *The Wandering Missouri River: A Study in Accretion Law,* 43 N. Dak. L. Rev. 429 (1967).

## II. LANDS THAT ARE SUBJECT TO REINUNDATION MAY NONETHELESS BE GAINED BY RELICTION

The Master's Report concludes that there must be a reasonable permanence or stability to the change in a physical riparian boundary in order for the doctrine of reliction to work a change in the legal boundary as well. As just noted, to the extent that this rule refers to seasonal or temporary changes, it is correct. Here, however, the Master has applied it to a situation where

an area may change from exposure to inundation only at intervals of many years or decades. For example, the land being reinundated by the present rise in the Lake has been dry for the last 22 to 43 years (see Ex. P–4). Similarly, many cases have held reliction applicable where a river first moved in one direction and then reversed its course to re-expose the land it had inundated. See, *e.g.*, *Peuker* v. *Canter*, 62 Kan. 363, 63 P. 617 (river moved and returned in 21 years); *Rupp* v. *Kirk*, 231 Iowa 1387, 4 N.W. 2d 264 (river moved in one direction for 25 years with occasional backtracking, then reversed); *Widdecombe* v. *Chiles*, 173 Mo. 195, 73 S.W. 444; *Wilcox* v. *Pinney*, 250 Iowa 1378, 1381, 98 N.W. 2d 720, 723. See also Beck, *supra*, p. 17, 43 N. Dak. L. Rev. at 453–461.[9] And, of course, land which is exposed or inundated just before a change in direction of movement takes place is generally the land that will be reinundated or re-exposed the most quickly. Thus land at the 4195 foot level exposed in 1960 was again inundated in 1966 (Ex. P–4).

In the present case, however, the long-run changes were of a reasonably permanent nature, and correlate well with long run factors such as rainfall.[10] For example, the Lake has reached the statehood level only once since that time, in 1909–1929. Conversely, at no

[9] Indeed, if a boundary did not remain ambulatory despite repeated water movement across a given point, the established doctrine that land lost by erosion or reliction may be regained by accretion or dereliction would be largely negated. See Lundquest, *Artificial Additions to Riparian Land: Extending the Doctrine of Accretion*, 14 Ariz. L. Rev. 315, 325–326 (1972); 5A Thompson *on Real Property* (1957 Replacement) § 2652, p. 614.

[10] See Peck and Richardson, *Hydrology and Climatology of the Great Salt Lake*, in Guidebook to the Geology of Utah, No. 20, Figure 4.

other period has it fallen as low as it did in 1960–1967. In the context of the average yearly fluctuation in the lake level of well under 1 foot, the long run changes of as much as 15 feet clearly indicate the applicability of the doctrine of reliction, rather than the exception for temporary or seasonal changes discussed in point I, *supra*.

Furthermore, the cases cited by the Special Master are inapposite. *Sapp* v. *Frazier,* 51 La. Ann. 1718, 26 So. 378 (1899), is only an elaboration of the rule that a boundary does not follow seasonal changes. As the Lousiana court explained:

> But the mere temporary subsidence of the waters, occasioned by the seasons, coming in the winter and staying through the spring, going in the summer and gone through the autumn, does not constitute dereliction, in the sense of an addition to the contiguous lands, susceptible of private ownership as riparian rights. There is no "increase of the land" in such case. The reliction must be from the waters in their usual state. Where it periodically rises up over the land, and then recedes, there is no reliction. [26 So. 380.]

Thus, in the context of a seasonal change, the Louisiana court continued:

> There has been no permanent uncovering of the waters, no laying bare of the bottom by the retirement of the waters to stay, and no shrinking back of the waters below the usual water-mark, and the remaining of the same at the point of shrinkage. It is true its bed, or a large part of it, becomes measurably dry, and

> remains so, more or less, for four or five months in the year. But it becomes covered again with water, which remains over it six or seven months, and in turn runs off, leaving the bed exposed; and this successive recurrence of conditions has been going on without any change from time immemorial. [26 So. 381.]

Likewise, *State* v. *Longyear Holding Co.*, 224 Minn. 451, 29 N.W. 2d 657 (1947), does not support the Special Master's position. That case involved the temporary drainage of a lake to allow iron mining on the bottom, and the lake was to be refilled when the operation was completed—obviously a highly temporary change. And *Fontenelle* v. *Omaha Tribe of Nebraska*, 298 F. Supp. 855 (D. Neb.), affirmed, 430 F. 2d 143 (C.A. 8), does not pertain at all to temporary fluctuations.

### III. THE BOUNDARY OF THE GREAT SALT LAKE HAS MOVED BY A PROCESS OF RELICTION, SINCE ITS MOVEMENTS HAVE BEEN GRADUAL AND IMPERCEPTIBLE

We thus return to the question presented by the established federal common law of reliction: Has the boundary of the Great Salt Lake, defined by the "average yearly stage," moved by a gradual and imperceptible process? The answer, on this record, is "Yes." As shown *supra*, pp. 12–13, the most extreme annual movement of the boundary at the flattest (and thus most extreme) point on the shore was only 15 inches per hour. That rate of movement is gradual and imperceptible. It is equivalent to the movement of the minute hand on a clock with a 2½

inch radius (about the size of a home alarm clock). The perceptible movement of the second hand on a standard government wall clock is 80 times more rapid than the most extreme lake movement. And the lake movement is more than 30 percent slower than the speed of the slowest known snail (Guiness Book of World Records, 1974 ed., p. 101).

As noted, 15 inches per hour is the most rapid movement of any part of the boundary of the Great Salt Lake that has occurred in historical times. A better standard for judging the Lake's fluctuation is the average movement over a period of years, measured around the whole perimeter of the Lake. That movement is about 1½ inches per hour, far below the threshold of human perception. Should one choose to follow the Special Master's suggestion (R. 15–16; Findings of Fact 14–15) and consider the movement in an average year along areas of flat shorelands, that movement would be substantially less than 15 inches per hour. Since the average lake level change of .69 feet (Ex. D–3) is about 35 percent of the most extreme change in lake level, the rate of movement in an average year at the flattest point along the shore would be about 5 to 6 inches per hour. The Special Master therefore erred in declaring (R. 20, 30) that such a movement cannot be found to be imperceptible.

Moreover, the law requires a specific finding that the movement was perceptible in order for reliction not to apply. A common law presumption favoring an ambulatory boundary is expressed in the rule that if an avulsion is not shown, an accretion will be pre-

sumed. Lundquist, *supra,* 14 Ariz. L. Rev. at 325 n. 54; 65 C.J.S. *Navigable Waters* § 86c; 5A Thompson, *supra,* § 2561 n. 88. Utah does not appear to contend that an avulsion has taken place in the change in boundary between statehood and the date of the quitclaim deed, and the Special Master specifically notes that none is involved (R. 10).

### IV. ANALYSIS OF THE PARTIES' INTERESTS IN THE GREAT SALT LAKE UP TO THE TIME OF THE GREAT SALT LAKE LANDS ACT REQUIRES THE APPLICATION OF THE DOCTRINE OF RELICTION

The Special Master correctly construed *Bonelli, supra,* 414 U.S. at 322–323, 328–329, 331, as requiring an analysis of the "public benefit to be protected" (*id.* at 323) in fixing the boundary (R. 21, 26). That analysis, however, indicates that the application of the doctrine of reliction is completely consistent with the public benefit considered in *Bonelli.* Throughout that opinion, this Court indicated that the public benefit to be protected was the State's interest in safeguarding navigation or related activities. Thus, in *Bonelli,* the State was denied title to exposed lands because the channelization project was not "undertaken to give the State title to the subject lands for the protection of navigation or related public goals" (*Bonelli, supra,* at 323). And the Court noted that the State's claim must fail, because "depriving petitioner of the subject land is [not] necessary to any navigational or related purpose" (*id.* at 331).

Similarly, in the present case, the general applicability of the reliction doctrine was necessary for the preservation of Utah's interest in navigation on the

Lake, up to the date of the Act. Indeed, the Special Master, in Conclusion of Law 4 (R. 32), in fact applied the doctrine of reliction to the reinundation which occurred since June 15, 1967, as follows:

> The public benefit of Utah which is entitled to protection has accompanied the reinundation of the bed of the Lake to approximately its extent at statehood.

And this would undoubtedly be correct, were it not for the passage of the Great Salt Lake Lands Act. By accepting that Act, Utah agreed to waive its right to control the Lake for navigational and related purposes to the extent that the Lake might rise above the meanderline, in return for the benefits accruing from a fixed boundary line.

Thus, Representative David S. King, of Utah, at the February 1966 hearings on the Great Salt Lake Lands Act, stated (Ex. P–22, p. 112):

> In that event [the return of the Lake to statehood level] the State of Utah would lose and it is perfectly willing to assume that risk. In other words, in this situation certainty is more important to all parties than the matter of gambling over the gain or loss of new territory. What is most important is that we get the matter settled and the State of Utah would be perfectly willing to hazard the risk of its losing acreage if the water should exceed the meanderline * * *. [Hearings Before the Subcommittee on Public Lands of the Committee on Interior and Insular Affairs, on H.R. 1791 and H.R. 6267, Great Salt Lake Relicted Lands, 89th Cong., 2d Sess., at 112 (1966).]

Contrary to the Master's statement that Congress could have intended Utah to pay for relicted lands only if the 1967 lake level was reasonably stable (R. 26), it was specifically contemplated that the Lake would continue to fluctuate. The Act itself, in Sections 2 and 4, recognizes the possibility of Lake movements both above and below the meanderline. Senator Bennett of Utah specifically stated in floor debate that within 10 years the Lake would rise enough to inundate some 350,000 acres (112 Cong. Rec. 5008) and later stated that he certainly hoped that the area was entering a wet period which would cause the Lake to rise (112 Cong. Rec. 11047). And of course Rep. King's testimony cited above supports the same conclusion. All of Utah's federal legislators supported the final legislation embodying this understanding. See 112 Cong. Rec. 5005, 7505, 7508, 11078–11081.

What we have here, realistically, is a gamble (although a low-risk gamble, as explained *infra*) by Utah that did not pay off. Utah's position has always been that reliction does not apply to the Great Salt Lake and that the State therefore owns all land under water at statehood, which Utah equates with the surveyed meanderline. The State's representatives apparently believed, however, that with the Lake at its very low level of the mid-1960's, a stable boundary and certainty of land titles were more important than a possible victory in litigation on the reliction question. Thus, the Great Salt Lake Lands Act was adopted. If the Lake had fallen further, Utah would have become the free owner of land which otherwise might

have been lost under the doctrine of reliction. Since the Lake has instead risen, Utah may now be required to pay for land which it would have owned without payment, except for the Act. But the outcome of that gamble should not affect the legal determination as to the applicability of the doctrine of reliction up to the date of the quitclaim deed. And as shown above, both the general principles of the doctrine of reliction and Utah's interest in control of navigation required the doctrine to apply until it was made inapplicable by contract.

Moreover, under the Act the ultimate choice lies with Utah. Should our contention prevail in this Court, the State may choose to pay the United States for the lands conveyed in 1967 and thus obtain the fixed boundary thought to be important when the Act was passed, or it may choose instead to retain its rights under the doctrine of reliction. If the State simply refuses to pay the amount ultimately determined to be due to the United States, the conveyance by the United States will be voided and the doctrine of reliction will continue to apply. Great Salt Lake Lands Act, Sec. 5(b), 80 Stat. 193. In that event, Utah would be the owner, without payment, of the lands now beneath the waters of the Great Salt Lake, although it would continue to run the risk of loss in the event of a future fall in the lake.

## CONCLUSION

It is therefore respectfully submitted that the United States should be confirmed as the owner, as of June 15, 1967, of such lands adjacent to United States

property as had been exposed by the recession of the ordinary high water mark of the Great Salt Lake between the date of statehood, January 4, 1896, and June 15, 1967.

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# In the Supreme Court of the United States

October Term, 1973

STATE OF UTAH

*Plaintiff,*

v.

UNITED STATES OF AMERICA

*Defendant.*

## REPLY BRIEF OF THE STATE OF UTAH IN SUPPORT OF THE SPECIAL MASTER'S REPORT ON RELICTION

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ERRATA

The photograph on P. 27 should appear as Figure 4 on P. 31.
The photograph on P. 31 should appear as Figure 2 on P. 27.

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No. 31, Original

# In the Supreme Court of the United States

October Term, 1973

STATE OF UTAH

*Plaintiff,*

v.

UNITED STATES OF AMERICA

*Defendant.*

## REPLY BRIEF OF THE STATE OF UTAH IN SUPPORT OF THE SPECIAL MASTER'S REPORT ON RELICTION

### INTRODUCTION

The report of Special Master Charles Fahy, filed April 15, 1974, concludes that the doctrine of reliction is not applicable to the unique mud flats constituting the shores of the Great Salt Lake, and that Utah thus has not been divested of the shorelands which it acquired upon its admission to the Union. The United States has filed exceptions to that report and a brief in support of its exceptions. This brief constitutes Utah's reply to the exceptions and brief of the United States.

As a synoptic background to this litigation, it should be observed that all States acquire ownership, by virtue of the Equal Footing Doctrine, of the beds and shores of the navigable waters situated within their borders. Consequently, Utah assumed that the Great Salt Lake was navigable, and that it thus owned the area contained within the surveyed meander line of the Lake. Acting on this assumption, Utah has—since statehood—actively managed and administered all activities on the Lake and its environs. In the early 1960's the United States first asserted a claim to an area of mud flats located below the surveyed meander line. Utah resisted that claim.

Without detailing the dispute that ensued, it can simply be noted that Congress finally passed the Great Salt Lake Lands Act, 80 Stat. 192, providing, among other things, that the boundary dispute would be settled by the issuance of a quit-claim deed from the United States to Utah, conveying any federal ownership interest in lands located lakeward of the surveyed meander line, conditioned on issuance of a similar quit-claim deed from the State of Utah to the United States, conveying any ownership interest which Utah might otherwise claim as shorelands in areas located upland from the surveyed meander line. These quit-claim deeds were exchanged.

The Great Salt Lake Lands Act, *supra*, also provided that Utah would have the option of either (1) purchasing the land claimed by the United States below the surveyed meander line for an amount to be determined by the Secretary of Interior, or (2) filing an original action in this Court to determine whether the

United States actually owned any interest in the lands purportedly conveyed by its quit-claim deed to Utah. If the United States had no interest to convey, Utah would pay nothing; if the United States did own any of the lands which it purported to convey, then Utah would be allowed to purchase that acreage for an amount thereafter to be determined by the Secretary of the Interior. Believing that the United States had no proprietary interest in the Great Salt Lake or its shorelands, Utah elected to litigate.

As a consequence, this Original Action was filed by Utah on March 1, 1967, to ascertain whether the United States owned any of the mud flats situated below the surveyed meander line of the Lake. Despite the interval of more than seven years since the date of filing, and despite the fact that this case has just now reached the reliction issue which Congress envisioned as the subject of the litigation authorized, the matter has been in active litigation and has been before the Court on several occasions. Issues relating to parties, intervention and jurisdiction were resolved by the Court in its approval of the recommendations in the first report of Special Master J. Cullen Ganey, 394 U.S. 89 (1969); the navigability of the Lake was confirmed by the Court's approval of Special Master Ganey's subsequent report which recommended that the Lake be declared navigable and that Utah's ownership of the bed of the Lake be confirmed by virtue of the Equal Footing Doctrine, 403 U.S. 9 (1971); and the Court thereupon referred the matter to counsel to see if they could agree on the form of the decree to be entered, such an agreement was reached, and the Court's decree was entered on May 22, 1972, 406 U.S. 484.

While the May 22 decree adjudicated that Utah was the owner of the bed of the Great Salt Lake, it did not resolve ownership of the adjacent mud flats. Paragraph 3 of the decree (406 U.S. 484-85) ordered that hearings be held to determine that question. Special Master Ganey had recently died, and the Court appointed the Hon. Charles Fahy as Special Master to conduct further proceedings in this case, 406 U.S. 940 (1972).

A hearing was held for the purpose of introducing evidence on the question of reliction in Washington, D.C., on February 27, 1973. Thereafter, the parties filed written briefs in support of their respective positions, and the report of Special Master Fahy was duly filed with the Court on April 15, 1974. While that report concludes that the doctrine of reliction is not applicable to the mud flats surrounding the Great Salt Lake, it does not purport to resolve other questions relating to the exact location of the boundary separating the public domain uplands of the United States from the state-owned bed of the Lake.

The specific acreage adjudicated by the Special Master's report is a belt of land surrounding the Lake and located between the elevations of 4194.9 and 4200.8 feet above mean seal level, comprising approximately 396,000 acres. The 4194.9 figure represents the elevation of the surface of the Lake on June 15, 1967 (the date of the quit-claim deed from the United States to Utah) and the 4200.8 figure represents the elevation of the Lake on January 4, 1896 (the date of Utah's statehood). Since the Court's decree of May 22, 1972 adjudicated that Utah became the owner of the bed of the Lake at statehood, it was obvious that Utah acquired

title—as a bare minimum—to all of the water-covered bed of the Lake at that time. However, between the date of statehood and the date of the quit-claim deed authorized and required by the Great Salt Lake Lands Act, the water level of the Lake had lowered, exposing mud flats which had been part of the water-covered bed at the date of statehood. The question, as stated by this Court in its May 22, 1972 decree, was "whether the doctrine of reliction vests in the United States, and thus divests the State of Utah, of any right, title or interest to any or all of the exposed shorelands situated between the water's edge on June 15, 1967, and the meander line of the Great Salt Lake as duly surveyed . . . ." (406 U.S. at 484-85, para. 3).

Since the surveyed meander line is located at an elevation approximating 4205 feet above mean sea level, the Special Master's report concerns itself with only part of the belt of land situated between the June 15, 1967 water level and the meander line. The total acreage of that belt would be approximately 594,000 acres, with 396,000 acres located between the elevations of 4194.9 and 4200.8 (and thus within the adjudication of the Special Master's report) and the balance of 198,000 acres located between the elevations of 4200.8 and 4205 (and thus subject to adjudication in further proceedings after the reliction issue is resolved) (Exhibit P-5). These figures are very rough approximations, since portions of the surveyed meander line were surveyed at different times, and that line thus varies somewhat in elevation from area to area.

The parties recommended to the Special Master that he adjudicate only the reliction question in this phase of the proceedings and that he defer all questions

relating to ownership of the strip of land located between the surveyed meander line and the elevation of the Lake at the date of statehood. This recommendation was prompted by a realization that the very complex legal and factual questions relating to ownership of the higher belt of land (location of the exact boundary line separating the public domain uplands from the state-owned bed) would be substantially simplified after the reliction question was resolved. The Special Master concurred in this recommendation, and the February 27, 1973 hearing was accordingly confined to the reliction question.

Thus, it will be necessary to conduct further proceedings to determine the location of the boundary in light of the Court's reaction to the report of the Special Master on the issue of reliction.

## QUESTION PRESENTED

The single question now before the Court for review is whether the common law doctrine of reliction serves to divest the State of Utah of title to part of the water-covered bed of the Great Sal Lake, and vest such title in the United States as the owner of the adjacent uplands (public domain).

The shorelands surrounding the Great Salt Lake are flat, saline, and barren, and are subject to frequent and erratic inundation, exposure and reinundation as the lake level rises and falls. As such, the area now in dispute was a part of the water-coverd bed when Utah acquired title to the bed of the Lake at statehood, was exposed on June 15, 1967 when the Federal Government issued its quit-claim deed to the State of Utah,

but is now again covered by the waters of the Lake. The issue is whether the temporary exposure of the lands caused by fluctuating and receding waters between statehood and June 15, 1967 was a process of reliction which caused title to pass from Utah to the United States.

The Government has stated this issue as two questions, *i.e.*, (1) whether rapid daily and seasonal fluctuations in the water level of the Lake, coupled with the prospect that exposed lands will again be reinundated by the waters of the Lake, render the doctrine of reliction inapplicable to the Great Salt Lake; and (2) whether the fluctuation of the waters of the Lake over the lands in dispute is a gradual and imperceptible process (Government's brief, page 9).

The Special Master found the doctrine of reliction to be inapplicable under federal common law, and has so reported to the Court. Utah seeks to sustain the report of the Special Master.

## SUMMARY OF ARGUMENT

The shorelands now in dispute, which the United States claims by virtue of the doctrine of reliction, have in recent years been mud-flat shorelands surrounding the Great Salt Lake but now are a part of the water-covered bed of the Lake. The dispute is essentially one of fact rather than law, since the ultimate question is whether the doctrine of reliction, as it developed at the common law and as it is applied in the federal courts, applies to the genuinely unique mud flats of the Great Salt Lake.

Since the dispute is essentially a factual one, this brief is organized in such a manner as to illustrate the factual characteristics first, and then to present the Special Master's evaluation of those characteristics. It will be seen that the Special Master conducted a thorough and painstaking analysis of the physical characteristics of the Lake, as well as a scholarly, perceptive and practical evaluation of the doctrine of reliction. In measuring the legal criteria for reliction against the physical characteristics of the Lake, the Master found that they simply did not fit, and that there was neither a legal nor practical basis for classifying the mud flats (now water-covered) as reliction lands.

The evidence before the Master included the testimony of Theodore Arnow, an employee of the United States Government who was called as a joint witness for the parties, and whose present position is District Chief of the Water Resources Division of the Geological Survey in Utah; and the testimony of Dr. William P. Hewitt, Director of the Utah Geological and Mineralogical Survey and professor of geology at the University of Utah. Numerous exhibits were introduced, designed to illustrate the nature and behavior of the Lake in its relationship to the shorelands (Exhibit P-5 contains 36 photographs, 12 in color and 24 black and white). By and large, the parties stipulated as to the accuracy of the data contained in the exhibits, and they do not challenge the accuracy of the testimony of the witnesses, and so the dispute is whether the physical characteristics of the Lake—as revealed by the testimony and illustrated by the exhibits—are consistent with the doctrine of reliction.

It is not practical to present a summary of the evidence in this section of the brief, but it can be observed that the extreme flatness of the shorelands, the briny content of the waters, the absence of any outlet or drainage mechanism, and the erratic imbalance of "inflow" and evaporation, all combine to cause the waters of the Lake to fluctuate continuously, alternately overflowing and receding from vast areas of the adjacent mud flats.

Perhaps the most practical way to summarize the basic content of this brief is to set forth in outline form the general thrust of the major points. No effort will be made to develop the arguments, but the arguments will be identified by the same Roman numerals used in the main body of the brief, and the table of contents will thus afford a ready reference to the page numbers where each argument is presented at some length in the Argument section of the brief.

I. *Unique Physical Characteristics of Great Salt Lake.* The rapid and continuous fluctuations of the lake's waters, overflowing and receding from vast areas in an erratic and inconsistent pattern, present unique characteristics which do not satisfy the reliction criteria of (1) gradual and imperceptible processes which (2) expose land on a reasonably permanent basis. The Government's argument is unsound because of its reliance on "averages" rather than actual water movements, because of its dependence on a fixed boundary which "shoots" instantaneously once each year, and because of a mismatch between evidence and theory.

II. *Special Master's Evaluation of Lake's Unique Physical Characteristics.* The Special Master's report

reveals that he conducted a thorough examination of the facts and an able analysis of the law, and that he correctly concluded that there had not been a change in boundary because there had been no gradual or imperceptible process and no reasonably permanent exposure of the land in dispute. The Master repeatedly emphasized that his findings and conclusions were based on the unique character of the Lake and the surrounding shorelands.

III. *The Government's Assigned Errors of "Law."* The Government does not dispute the Master's characterization of the doctrine of reliction, but charges that the Master made two errors of law in applying that doctrine to the facts. These charges are that the Master erred in (1) viewing seasonal changes as affecting the boundary, and (2) requiring that exposed lands have a reasonably permanent exposure . The first of these assigned errors of law is misstated by the Government since the Master did not conclude that seasonal changes affect the boundary. But, more importantly, both of these assigned errors are challenges to the Master's evaluation of the facts rather than to his legal analysis. The Government simply disagrees with the Master's view of the unique characteristics of the Lake.

IV. *Burden of Proof and Scope of Review.* This Court has decided that Utah acquired ownership of the lands in dispute at statehood, and the question now before the Court is whether the doctrine of reliction should be applied to divest Utah of its previously adjudicated title, and vest such title in the United States. Since the Government asserts the doctrine of reliction,

it has the burden of proving facts which show that the doctrine should be applied. The Master found that the Government failed to prove its case.

Since the Special Master is this Court's trial arm, his findings of fact should be accorded the same presumption of correctness as that accorded to the findings of federal trial judges.

V. *Some Impractical Consequences of Applying Reliction*: If the doctrine of reliction were to be applied to the extremely flat mud-lands of the Great Salt Lake, the result would be chaos and confusion in land titles, land administration, and development of mineral resources within the Lake and beneath the bed of the lake.

VI. *The Equities.* Both Utah and the United States have viewed Utah as the owner of the lands in dispute from the date of Utah's statehood (January 4, 1896) until the early 1960's, when the Government first asserted a claim to a portion of the mud flats. Utah has always managed and administered these lands, is the adjudicated owner of the mineral resources within and beneath the Lake, and is dependent upon the mud flats for the development of these mineral resources and for the conduct of other public programs. By contrast, the Government has no programs or activities which are concerned with the mud flats. The Master's recommendations are wholly consistent with the practical equities of the present dispute.

VII. *Two Minor Corrections and One Clarification.* The Special Master has adopted two of the findings of former Special Master J. Cullen Ganey which are not entirely accurate in this phase of the proceedings, and minor adjustments should be made to con-

form those findings with the present record. The Government agrees that these adjustments should be made. Further, the Government's request that the proposed decree contain the words "such as," and the Special Master's concurrence therein by his transmittal to the Court dated June 5, 1974, are explained. Utah objects to the insertion of those words in the decree, but only because the Government has made efforts in other litigation to construe those same words in this Court's May 22, 1972 decree as an adjudication of issues not yet presented to or decided by the Court.

## ARGUMENT

### I. *UNIQUE PHYSICAL CHARACTERISTICS OF GREAT SALT LAKE.*

#### *A. Preliminary Explanation*

The Great Salt Lake is truly unique in Anglo-American jurisprudence. It is a remnant of ancient Lake Bonneville, which at its maximum stage was 1,000 feet deep and covered about 35,000 square miles (about the size of Lake Superior, the largest of the Great Lakes) (T. 32). When Lake Bonneville lowered to the point that it lost its outlet to the Pacific Ocean through the Columbia River drainage basin, it became a land-locked inland sea, and continued to shrink until it became a briny residue of its former self, occupying only a portion of the flat desert floor which once had been its bed. That residue is the Great Salt Lake as it is known today—a body of water with a surface area less than one-twentieth the size (1,650 square miles) and a depth of about one-thirtieth (34 feet) of its ancient predecessor (T. 32 *et seq.*).

Since the Great Salt Lake has no outlet, it has no way of discharging water it receives by tributary inflow and by precipitation falling on the surface of the Lake—other than by evaporation. When the Lake receives water faster than the rate of evaporation, it rises; and when evaporation exceeds inflow, it falls.

The long term fluctuations are influenced primarily by climate. Heavy precipitation on the Lake and the watersheds of its tributaries increase inflow, and cool weather reduces the rate of evaporation and thus decreases "outflow," and these factors cause the Lake to reach higher stages. Conversely, years of low precipitation and hot weather cause the Lake to reach lower stages (T. 35 *et seq.*).

Aside from climate, the water level of the Lake is influenced substantially by impoundments, diversions and uses of water on the tributaries. The impact of these man-made interferences is shown in Exhibit P-18, which reconstructs what the various water levels or stages of the Lake would have been at any particular time if the Lake had been left in its natural condition, unaffected by the activities of man. That exhibit shows that the Lake would be at a level approximately 5.3 feet higher in vertical elevation than at present if it had remained in its natural condition. But the effect of man-made reductions in the tributary inflow to the Lake does not really change the nature of the fluctuations of the water level. The water level would still fluctuate as dramatically and frequently, but it would be fluctuating at a higher elevation.

So, regardless of climate patterns and man-made interferences with tributary inflow, the Lake fluctuates

substantially each year—on a seasonal basis between the high level which follows the Spring run-off of the tributaries and the low level in the Fall which follows the Sumner evaporation. And it also fluctuates up and down on a monthly, daily and hourly basis within and between the seasonal fluctuations. As Mr. Arnow aptly summarized his direct testimony, the Lake is "continuously fluctuating" (T. 54).

Since the shorelands are vast, flat, saline lands, even minor fluctuations in the vertical elevation of the Lake causes the water to overflow the mud flats, unimpeded by vegetation or plant life. It is the evidence illustrating these fluctuations that is most relevant and illuminating, but, before turning to that review, it is first necessary to mention some of the basic errors which the Government has made in characterizing the evidence.

### B. *Some Basic Fallacies of the Government's Analysis*

#### 1. *The Government's Use of "Averages"*

Perhaps the most fundamental error which the Government has committed is in assuming a lake behavior that is wholly contrary to the actual water fluctuations. Some explanation of the background and nature of this error seems appropriate.

For tidal waters, the boundary separating the tidelands from the uplands is the average of the high tides over the 18.6-year cycle; whereas, on inland waters the boundary is the "high water mark" established as a reasonably permanent physical mark evidenced by

vegetation or erosion, and located at the high water level reached by the watercourse during its high cycles. (See, *e.g.*, *Borax Consolidated, Ltd. v. Los Angeles*, 296 U.S. 10 (1935); and *United States v. Washington*, 294 F.2d 830 (9th Circ. 1961)). The boundary can change through natural processes, including accretion and reliction, if new land is exposed or inundated little by little, in a gradual and imperceptible manner, resulting in a reasonably permanent change in the reach of the tidal waters over the tidelands, or creating a new high water mark on inland water (see pp. 72-73, *infra*).

Since the Great Salt Lake is an inland body of water located entirely within the State of Utah, it is important to analyze the behavior of the water level of the Lake to determine whether the pattern of fluctuations has resulted in a gradual and imperceptible exposure of shorelands and left them permanently above the ordinary high water mark.[1]

The evidence introduced before the Special Master relates almost entirely to the behavior of the water level of the Lake as it affects the adjacent shorelands. Utah illustrated the actual behavior of the water level from an hourly and daily basis to monthly, semi-annual, annual and five-year intervals. The purpose was to show where the water level actually was at various points in time, and that—however viewed—the water level had never stabilized to establish any reasonably

[1]The problem of locating a physical high water mark on the Great Salt Lake might be insurmountable because the saline lands do not produce a growth of vegetation and are so flat that waves simply roll over them horizontally rather than create an erosion line. In any event, this problem (and many others) has been reserved for future consideration after the reliction issue is resolved.

"permanent" level (or high water mark) above or within the fluctuations of the lake level. It is against these actual facts that the legal criteria for reliction must be measured.

The United States did not contest the accuracy of any of the facts illustrated in Utah's exhibits, but elected rather to assume a lake-level behavior quite contrary to the facts—and then to argue its reliction claims in light of that erroneous assumption.

This is to say that the Government relies exclusively on "average" changes in the water level, rather than *actual* changes. This approach pervades the entire brief of the Government. For example, on page 12 of its brief the Government cites Exhibit D-3 in support of the proposition that the "average annual change" in the water level from 1896 to 1967 has been .69 feet, and from this argues that the rate of movement of the water over the mud flats has been "1½ inches per hour" (Government's brief, page 13). Through the same technique of "averaging," the Government asserts that the most rapid movement of the water over the shorelands has been 15 inches per hour, so that the rate of movement ranges between 1½ and 15 inches per hour (Government's brief, page 13). From these mathematical calculations based on erroneous "averaging," the Government then argues that such a rate of movement is imperceptible to the eye and thus consistent with the doctrine of reliction, concluding that "the lake movement is more than 30% slower than the speed of the slowest known snail" (Government's brief, page 21).

The trouble with this, of course, is that it is a con-

clusion based on a wholly erroneous assumption as to the movement of the water over the shorelands. While it may be true—as the Government contends—that the net "average annual change" from statehood to 1967 has been .69 feet, it is also true—as the Government indicates—that the total net change between statehood and May 24, 1974 was only six-tenths of a foot (.6), the difference between 4200.8 and 4201.4 (Government's brief, page 14). From this the Government could have argued, with equal logic, that the "average annual change" in the water level of the Lake between statehood and May 24, 1974 has been about one-tenth of an inch, and thus arrived at a truly imperceptible rate of movement of the water over the shorelands. But these "facts" are not relevant facts, and they have nothing to do with the actual behavior of the water level, or the actual rate of movement of the water over the shorelands.

To be sure, the Government is free to assert any *legal arguments* it wishes with respect to the legal relevance of the actual facts relating to the water level, such as the argument set forth on page 10 of its brief to the effect that only annual changes work a change in boundary. While there is absolutely no legal authority for that proposition (and the Government cites none), the pertinent observation is that it is grossly inaccurate and highly misleading for the Government to argue the perceptibility of the rate of water movement from assumptions wholly unrelated to the actual water movement. Thus, the *actual net change* in the water level for any given year is not .69 feet. Further, even the actual annual net change in water level fails to reflect the actual water movement through daily,

weekly, monthly and seasonal cycles which ultimately results in the net annual change.

To place the matter in perspective, it should be noted that both Utah and the United States take the position that daily, monthly, and seasonal changes in the water level do not result in reliction. The point of departure is that the Government argues that reliction applies to cause a change in boundary once each year when the net annual change in water level is ascertained, whereas Utah argues that reliction applies only when shorelands are exposed with reasonable permanence through a gradual and imperceptible process. It is now appropriate to examine the lack of logic in the Government's contention that reliction applies once each year when the average annual change in water level is observed.

### 2. *The Government's "Shooting Boundary"*

The exact location of the boundary line between state and federal ownership is not yet in issue, but in attempting to define its reliction claim the Government has found it necessary to discuss the boundary by declaring that such boundary fluctuates only with the "annual" changes in the Lake level. Thus, at page 10 of its brief, the Government declares:

> The level of the Great Salt Lake is affected by three general types of fluctuations: annual, seasonal, and daily. Only the annual fluctuations reflect a change in the ordinary high water mark—the boundary that is subject to modification by the doctrine of reliction.

While Utah does not accept that propositon as a correct statement of law, the matter may more properly

be argued when it is in issue. For the present, it may be noted that the Government uses this conclusion as a platform from which to argue that average annual fluctuations should be used to determine if the doctrine of reliction is applicable. This position is a departure from the primary position asserted by the Government when the parties filed a Joint Pre-Hearing Statement of Issues with the Special Master to guide the conduct of the reliction hearing. At that time the Government contended that its primary position was that the boundary separating its reliction claims from the state-owned bed was the actual water level. Thus, on page 3 of that Statement it is recited that:

> The United States contends that the proper basis is a contour line representing the actual water level of the Lake. *Another possibility* is a contour line at an elevation adjusted from the actual level of the Lake to account for seasonal fluctuations of the Lake. (Emphasis added.)

However, the Government now seems to have clearly abandoned its primary position and to have reverted to the other "possibility." And this abandonment seems to have been precipitated by a recognition that the actual water level moves too swiftly, frequently, erratically and substantially to satisfy the "gradual and imperceptible" demands of the doctrine of reliction. Therefore, the Government now appears to be embracing its secondary theory of "a contour line at an elevation adjusted from the actual level of the Lake to account for seasonal fluctuations of the Lake."

But the present alternate theory poses a most difficult dilemma for the Government. One horn of the dilemma is that, if the "adjusted" contour line is

to be mesaured by the "actual level of the Lake"—but situated high enough above the water level to account for "seasonal fluctuations of the Lake"—then the adjusted contour boundary will necessarily fluctuate in exact accordance with the water level — just as swiftly, frequently, erratically and substantially. The only difference would be that the adjusted contour boundary would be fluctuating at a higher level. Thus, if the average *seasonal* fluctuation is, say, two feet in vertical elevation, then an adjusted contour line always located two feet above the water level might seem to "account" for such seasonal fluctuations — but such contour line would also fluctuate as if it were the very shadow of the water level itself. And so the Government, by reverting from its primary to its secondary position, has escaped none of the difficulties it sought to eschew.

The other horn of the dilemma must be faced by the Government if it elects to view the adjusted contour line as a "shooting" boundary rather than one which fluctuates with the water level. This is to say that the contour boundary must either move as the water level moves, or it must remain stable and fixed despite the water level fluctuations, and then—once each year—shoot instantaneously from the adjusted contour line of the previous year to the adjusted contour for the present year. This presents rather absurd consequences, both from a practical and legal standpoint.

From a practical standpoint because it would be impossible to tell when the boundary change occurred or where the new boundary was located—until some subsequent time. This is so because the high level of

seasonal fluctuation does not occur on the same day each year—or even during the same week or month. Thus, for example, it might not be until July 15 of a given year that it could be definitively determined that May 10 was the seasonal high—and the boundary would thus have changed more than two months prior to the time that anyone knew or could have known about it. Another practical absurdity under the Government's argument is that "reliction" lands would be part of the water-covered bed of the Lake virtually every year. This is so because the high cycle of seasonal fluctuation exceeds the "average" level used to arrive at the net annual change, resulting in an inundation of "reliction" lands for a substantial part of each year.

The absurdity from a legal standpoint is that the doctrine of reliction is anathema to shooting boundaries. Reliction allows a change in boundary only when the change is reasonably permanent and is little by little, by small and imperceptible degrees, resulting in trivial and insignificant amounts of land—when the change is *de minimis non curat lex.* The boundary change must be so slow that it cannot be perceived while the reliction process takes place. But if under the Government's view the boundary is not to fluctuate with the water level, but is to change instantaneously each year, then the change will in fact be "imperceptible," but not because it is too gradual — it will be imperceptible because the change is too quick for the eye to see. This is the exact opposite of "imperceptibility" which the doctrine of reliction contemplates. The law favors stability and certainty of real estate titles (pp. 77-79, *infra*), and — however viewed — the

Government's "shooting boundary" argument could produce nothing but continuing chaos in land titles.

The Government can gain no ground by abandoning its water level theory in favor of its adjusted contour theory to measure the lakeward limit of its reliction claims.

### 3. *The Government's Mismatch of Evidence and Theory.*

There is a fundamental contradiction between the Government's evidence and theory underpinning its reliction argument. As an evidentiary matter, the Government relies exclusively on its "averaging" technique in an effort to make it appear that the rate of movement of the water over the mud flats has been slow and imperceptible, as explained above. As a matter of legal theory, the Government has argued that reliction should cause the legal boundary to change once each year in accordance with the *average, actual* "annual fluctuations," also explained above. But the Government's *average* annual change of .69 foot per year has nothing at all to do with the actual average change in the water level each year. Surely, the Government does not contend that it either acquires or loses by reliction the land spanned by a precise .69 foot change in elevation each year — without regard to the actual water level for the particular year. It would seem that the Government must argue as a matter of logic that its annual shooting boundary attaches at the elevation reached by the water for each year in question. But if that is the legal argument, the evidence relied on by the Government has no relation to its legal theory.

As indicated above, the Government's arguments on both fact and theory are fatally vulnerable on other legal and practical grounds, and it is simply noted here that, notwithstanding such vulnerability, the Government's evidence and theory bear no reasonable relation to each other.

### C. *Fluctuating Water Level and Adjacent Shorelands*

#### 1. *Preface*

As explained earlier, the legal criteria for applying the doctrine of reliction are presented in point III.D *infra*, and the physical characteristics of the Lake, against which those criteria must be measured, are explained in the discussion which now follows.

The Special Master appended many of the key exhibits to his report, and those exhibits are thus readily available to the Court. None of the photographs were reproduced in the Master's report, however, and so the black and white photographs have been reproduced as Figures 2 through 25 in this brief. These photographs are part of Exhibit P-6, a ring-bound volume which also contains twelve colored photographs of the shorelands of the Lake. The black and white photographs were taken between 10:00 a.m. and 12:00 noon on October 26, 1972 from a Cessna 180, flying about 1,000 feet above the lake level (Exhibit P-6). The weather was overcast with smog along the east shore of the Lake. As the photographs were taken, the location of each was keyed to a map, which is identified as Figure 1 (Exhibit P-6). By reference to this map it is possible to ascertain the point at which each photo-

graph was taken and the direction of the view. Most of the photographs are similar, and the reason for including all of them is because, taken as a whole, they illustrate the shorelands around the entire Lake, and thus present a composite picture of the area in dispute.

The colored photographs are not reproduced in this brief, even though they are much clearer than the black and white pictures (the colored pictures were taken on a clear day, February 12, 1973, which was about two weeks prior to the hearing before the Special Master). Since the water level of the Lake rose 1.25 feet during the four-month interval between the taking of the black and white photographs and the colored ones, nearly 100,000 acres of shorelands were inundated (including much of the area now in dispute). Thus, on February 12, 1973, when the colored photographs were taken, the lake level approximated the level at statehood, and the shorelands shown in those pictures are by and large located above the area now in dispute. It therefore seemed more appropriate to reproduce the black and white photographs in this brief.

In the discussion that follows, the transcript of the hearing is cited as "T" and the report of the Special Master is cited as "R", followed by the appropriate page numbers. The exhibits are identified by number, and the Appendix appearing at pp. 107-10 of this brief contains an identification and brief description of each exhibit introduced, thus providing a preliminary reference point. And, as noted above, the Special Master's report contains many of the exhibits, and thus affords a direct reference to many of the facts illustrated in the evidence.

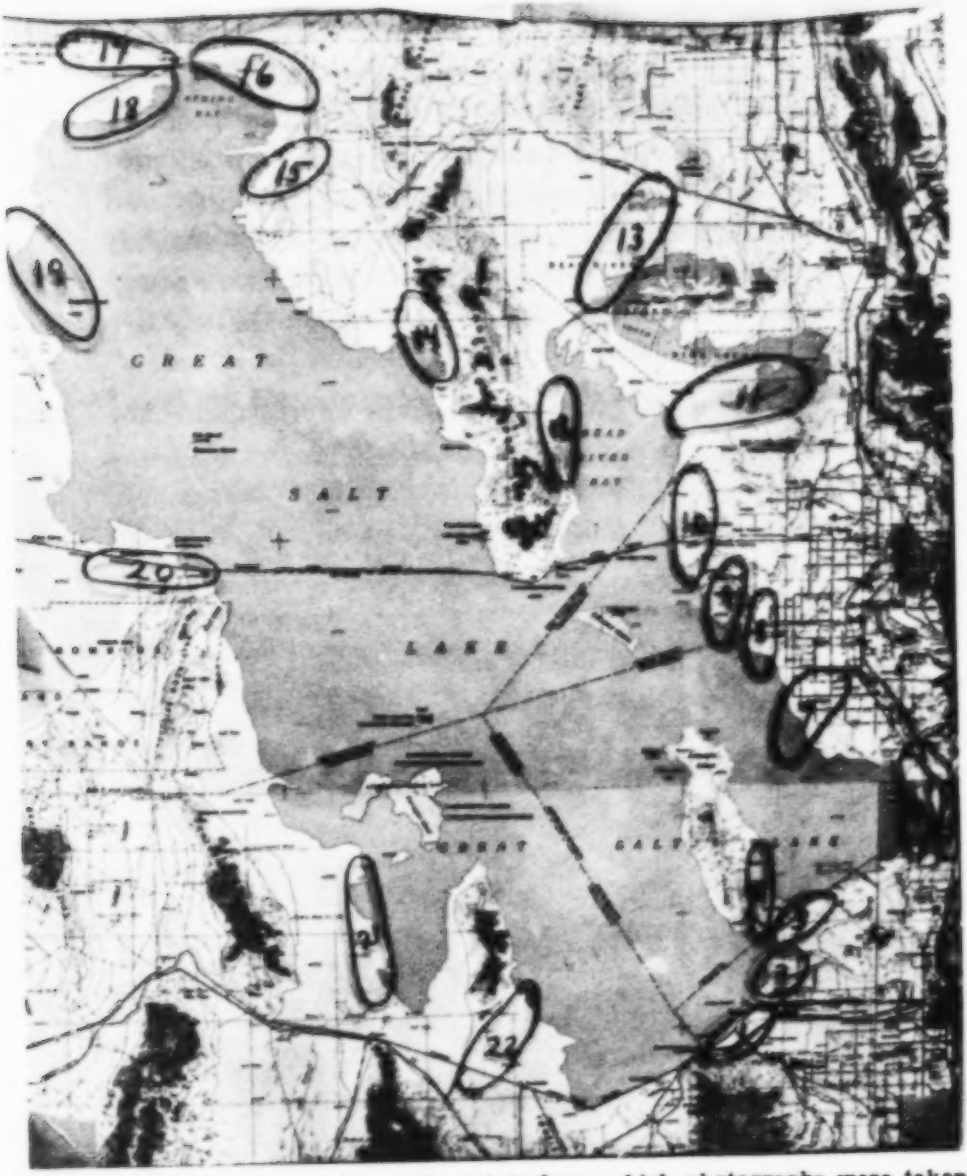


**Figure 1. This photo-map shows the points from which photographs were taken of the mud flats around the Great Salt Lake. These photographs appear as Figures 2 through 25 on the following pages of this brief, and are identified with respect to the numbered areas on the map. The above photo-map and all of the photographs are contained within exhibit P-6.**

*2. Basic Nature of Fluctuations*

When the Mormon pioneers first entered the Great Salt Lake Valley in 1947 the Lake was at an elevation of approximately 4200 feet above mean sea level (T. 35). The Lake was at approximately that same level on January 4, 1896 when Utah obtained statehood (Ex. P-4), and was also at approximately the same level in February, 1973 when the hearings were held before the Special Master on the reliction issue (T. 37-38).

Despite the fact that the Lake approximated the same level in 1847, 1896 and 1973, the Lake has never stabilized within any consistent range of fluctuations. Since 1847 the range of fluctuations has been approximately twenty feet in vertical elevation (T. 37), ranging from a high of about 4212 in 1875 (T. 35) to a low of approximately 4192 in 1963 (T. 37, Ex. P-4).

The evidence shows that the fluctuations have been rapid and erratic, and have followed no pattern with respect to the shoreland area inundated and exposed as the waters rose and fell. The basic data compiled with respect to the fluctuations of the water level of the Lake are found in Exhibits P-3 and P-5. Exhibit P-3 consists of the USGS records which show the gage readings of the Lake on the first and fifteenth of each month, from 1875 to the present time (see also T. 54 *et seq.*). Exhibit P-5 is a tabulation of the acreage within the surface area of the Lake at specified elevations, broken down to intervals of .1 (1/10) foot (see T. 56-58). By taking the Lake level recordings from Exhibit P-3 and the acreage information con-

tained in Exhibit P-5, it is possible to reconstruct the surface area of the Lake at any particular date. This is accomplished by taking the appropriate acreage figure for the surface area at any particular elevation (T. 58-60).

Exhibit P-4 is the basic hydrograph prepared by USGS which shows the general nature of the fluctuation in the water level of the Lake from 1850 through 1972. The continuous line showing the fluctuation in water level actually connects twenty-four separate plottings for each year. Since readings are taken on the

**Figure 2. The view is looking east from Black Rock Beach, with the Lake on the left, U.S. Highway 40 on the right, and mud flats in-between. Identified as No. 1 on the photo-map. Exhibit P-6.**

first and fifteenth of each month, there are a total of twenty-four for the year, and these readings are plotted on the hydrograph; the connecting line is then drawn through them, so that the hydrograph is a reasonably accurate representation of the general water level of the Lake during the year — and it shows the major seasonal fluctuations. The "water year" is from October 1 to September 30 of the following year.

From whatever vantage point one might study the behavior of the water level of the Lake, over whatever period of time, or for whatever interval of time, the same striking erratic pattern will be observed. The best way to illustrate this is to start with an illustration of the Lake level at five-year intervals and follow the fluctuations through yearly, monthly, daily and hourly intervals.

### 3. *Fluctuations at Five-Year Intervals*

Exhibits P-7 and P-8 illustrate the Lake fluctuations at five-year intervals from 1850 through 1970. For consistency, Exhibit P-7 reflects the gage reading as of June 1 for each five-year interval. The interim fluctuations are disregarded, since the purpose of the exhibit is simply to show where the actual water level of the Lake was at each such interval. It will be seen that the water level represented no pattern, rhyme or reason at any time during this recorded history. The shorelands inundated or uncovered during these intervals are shown in Exhibit P-8, which is a companion exhibit to P-7 and corresponds directly with it. Thus, Exhibit P-8 shows the surface area of the Lake in acres for each elevation shown in Exhibit P-7, covering the same period from 1850 through 1970.

Exhibit P-8 shows, for example, that from 1905 to 1910 more than 350,000 acres of mud flats were inundated as the water rose; and shows that from 1930 to 1935 over 300,000 acres of mud flats were exposed as the water level lowered during that interval. The examples just mentioned are among the more dramatic fluctuations, but each interval shows a substantial change in the level of the Lake, and the two exhibits show erratic behavior which demonstrates that the Lake level has never stabilized since statehood. The above references to mudflat areas in excess of 300,000 acres might be illustrated by suggesting that it would require

**Figure 3. The view encompasses the same general area as Figure 2, but the photograph was taken from a point further east and the view is toward the northeast. Identified as No. 2 on the photo-map. Exhibit P-6.**

a parcel of land two miles wide and 234 miles long to equal the area inundated or exposed during the times indicated.

*4. Fluctuations at One-Year Intervals*

Exhibit P-9 shows the elevations of the water level at June 1 and November 1 of each year, from 1850 to November 1, 1972; and Exhibit P-10 shows the surface area of the Lake in acres for each date shown on Exhibit P-9. Again, it will be seen that the fluctuations are erratic and follow no pattern, either with respect to the vertical elevation of the water level or the acreage inundated or uncovered as a result of the fluctuations. The fluctuations commonly range between one and two feet in vertical elevation within a six-month span, either inundating or exposing an area of mud flats ranging from 50,000 to 150,000 acres —depending on the actual fluctuation in elevation and the stage of the Lake at that time.

*5. Fluctuations at Monthly Intervals*

Exhibits P-11 and P-12 are companion exhibits showing the fluctuations of the Lake at monthly intervals from 1896 (the year of statehood) to February 1, 1973 (the last gage reading available prior to the hearings). As with the exhibits explained above, P-11 reflects the elevation of the Lake and P-12 shows the surface of the Lake in acres for each elevation shown on P-11. It should be remembered that these two exhibits reflect twelve points plotted for each year (one for the first day of each month), and the line drawn on the exhibits thus intersects each of the twelve points

plotted, both with respect to the elevation line in Exhibit P-11 and the acreage line shown on Exhibit P-12.

These exhibits essentially confirm the same observations made with respect to Exhibits P-9 and P-10, where the readings were taken for June 1 and November 1 of each year. P-11 and P-12 simply bring in the additional data for each month during the year —and the same erratic behavior of the Lake in its vertical fluctuations and in the vast acreage of mud flats inundated and exposed are likewise illustrated on these exhibits.

**Figure 4. Photograph taken at low altitude from point identified as No. 2 on photo-map, looking east. Exhibit P-6.**

Exhibits P-13 and P-14 are similar to Exhibits P-11 and P-12. The basic difference is that Exhibits P-13 and P-14 cover only the period 1955 through February 1, 1973; however, P-13 and P-14 show vertical lines for each month, so that it is easier to identify the specific elevation and specific acreage of the surface of the Lake for any month during the period mentioned above. Since points are plotted for the first and fifteenth of each month, the elevation and acreage can actually be calculated at each interval of approximately two weeks. Again, the same physical characteristics of erratic, dramatic, and non-stabilized fluctuations are shown, and seasonal and annual fluctuations regularly inundate or expose several hundred thousands acres.

Exhibit P-15 also shows the fluctuations of the Lake in elevation and in surface area on a monthly basis, but here the monthly periods illustrated are during the years 1903-04 and 1906-07. These periods were selected because they were shortly after the date of statehood (1896) and because they represent what appear from the hydrograph to be both a relatively stable and a relatively erratic period (Ex. P-4). The 1903-04 period is the relatively stable period, while the 1906-07 period is less stable. However, when translated to show the actual behavior of the water level and its resulting impact on the surrounding shorelands on a monthly basis, it is clearly evident that the fluctuations in elevation are significant and that the area of shorelands alternately inundated and exposed is substantial, for virtually every month of the forty-eight illustrated on the exhibit.

### 6. *Fluctuations on a Daily Basis*

Moving now to the behavior of the Lake on a daily basis, Exhibit P-16 is the actual continuous recording made by the USGS gage at the Salt Lake County Boat Harbor during the month of June, 1967. This exhibit is recorded on a grid which allocates twenty-four squares on a horizontal plane for each day, so that each square represents a period of one hour. The actual water level fluctuates each day, usually both up and down, and sometimes dramatically so, although the level for any particular day is "averaged" by the United States Geological Survey by arriving at a specific

**Figure 5. Photograph taken at low altitude from point identified as No. 2 on photo-map, looking northeast toward Lake and showing mud flats. Exhibit P-6.**

figure for the elevation. These figures are written on the exhibit below the gage recording for each day of the month.

Exhibit P-17 is an illustration of the gage recording (P-16) explained above, comparing surface area with the fluctuating elevation of the Lake. While the day-to-day fluctuations are significant, the more significant observation, already noted above and illustrated in some detail below, is that the actual water level fluctuated much more frequently and much more dramatically than shown on Exhibit P-17. The reason for this is that Exhibit P-17 shows only an arbitrary and stable figure to represent the elevation for each day of the month; whereas, in truth and fact, the water level of the Lake almost always fluctuated substantially and frequently during each *hour* of each day.

### 7. *Fluctuations on an Hourly Basis*

The foregoing discussion shows how the Lake level rises and falls over different spans of time, whether five years, one year, six months, monthly or daily. The gage readings for all of the exhibits discussed above show the Lake at a specific elevation for each of the days indicated on the exhibits.

But the Lake is not "stable" during any particular day—nor during any hour. Perhaps the most interesting and revealing feature of the Lake's many unique characteristics is the behavior of the water level on an hourly basis. This is illustrated by Exhibit P-16, discussed above, which is a copy of the actual recording made by the Salt Lake County Boat Harbor gage for the month of June, 1967. The recording is continuous

Figure 6. Photograph taken toward the northeast from point identified as No. 3 on photo-map, showing mud flats near southern end of Antelope Island, with Lake in lower right corner. Exhibit P-6.

for the 24-hour period of each day, and is similar in appearance to an electrocardiograph (T. 46).

An examination of that exhibit shows that the recorded line (water elevation) moves up and down each day—usually several times each day. Some days show radical movements in the water level (*e.g.*, June 5, 6, 19, 21, 22, 23, 27, 28), and these more dramatic fluctuations sometimes are influenced by wind forces (Mr. Arnow identified the fluctuations on June 5 and 21 as wind tides (T. 46-47)). Some days show other significant but less dramatic fluctuations, which may or may not be affected by wind tides (*e.g.*, June 10, 16, 17, 20). But, to repeat, the most impressive observation is that the water level always fluctuates, both up and down, during the course of *every* day.

The grid on Exhibit P-16 contains twenty-four boxes or squares on a horizontal plane for each day, and each square thus represents one hour (T.47), as mentioned above. The vertical columns measure the elevation, and it will be noted that there are twenty boxes or squares for each foot in elevation, so that each square represents 1/20th (one twentieth) of a foot. With that in mind, it is illuminating to follow the movement of the water level during intervals within a single day.

To illustrate, on June 6 the water level appears to have risen and fallen ten times, although the Lake level for that day is "averaged" to show a single, stable level. Also, during a three-hour period from the end of June 5 to the beginning of June 6, the water level dropped more than two feet, presumably the result of wind action. But if one analyzes the ten-day period follow-

ing (to June 15, 1967, the date of the quit-claim deed from the United States to the State of Utah), it will be seen that the Lake level rose and lowered an average of four cycles per day for each day during that period, and that the major fluctuations ranged between one-fourth and one-half foot in elevation—which would have a corresponding effect of either inundating or exposing between 10,000 and 20,000 acres of mud flats with each such fluctuation. With an average of eight fluctuations (4 cycles) per day, the area exposed and inundated would exceed 100,000 acres per day for most of the days during that ten-day period.

**Figure 7. Photograph showing southeast shore of Antelope Island, with mud flats appearing on the center right and upper right of photo. Taken from point identified as No. 4 on photo-map, Exhibit P-6.**

8. *Rate of Water Movement Over the Shorelands*

The foregoing discussion illustrates that the water level of the Great Salt Lake has fluctuated rapidly, dramatically, and erratically from the beginning of the recorded history of the Lake to the present time. The exhibits above discussed show beyond question that the fluctuations of the water level have never stabilized within any consistent range of elevations—not even on a short-term basis.

But those exhibits do not show the actual rate or speed of the water movement across the mud flats. That rate can be determined, however, from an analysis of Exhibit P-16 (the continuous recording made by the USGS gage located at the Salt Lake County boat harbor). This can be done by selecting any particular day and (1) observing the periodic changes in vertical elevation, (2) calculating the horizontal distance which the water would travel across the shorelands, and (3) computing the rate of speed at which the water would travel in order to cover the horizontal distance during the relevant time span.

To illustrate this computation, June 13 seems to be a representative day, since it reveals none of the radical fluctuations of the more dramatic days (wind tides) but does show more marked fluctuations than the more "stabilized" days. Remembering that each square in the horizontal columns represents one hour in time, and that each square in the vertical columns represents 1/20th of a foot in elevation, the hour-by-hour fluctuation on June 13, as revealed by Exhibit P-16, is as follows:

Midnight to 1 a.m.—fell 4 squares, or 1/5 of a foot.

1 a.m. to 2 a.m.—fell 3 squares, or 3/20ths of a foot.

2 a.m. to 3 a.m.—fell 1 square during the first twenty minutes, and then rose 3 squares during the next forty minutes, for a combined movement of 1/5 of a foot.

3 a.m. to 4 a.m.—rose 2 squares, or 1/10th of a foot.

4 a.m. to 5 a.m.—rose 3 squares, or 3/20ths of a foot.

**Figure 8. Photograph looking north from point identified as No. 5 on photo-map, showing Farmington Bay Waterfowl Management Area. The area shown is virtually all mud flat, and the only water shown is fresh water impounded by the waterfowl dikes at lower right of photo. Exhibit P-6.**

5 a.m. to 6 a.m.—rose 1 square, or 1/20th of a foot.

6 a.m. to 7 a.m.—fell 2.5 squares, or 1/8th of a foot.

7 a.m. to 8 a.m.—fell 3.5 squares, or 7/40ths of a foot.

8 a.m. to 9 a.m.—fell 1 square, and then rose .75 square, for a combined movement of 7/80ths of a foot.

9 a.m. to 10 a.m.—fell .25 square, and then rose 1.5 squares, for a combined movement of 7/80ths of a foot.

10 a.m. to 11 a.m.—rose 2 squares, and then fell .25 square, for a combined movement of 9/80ths of a foot.

11 a.m. to 12 a.m.—rose .25 square, or 1/80th of a foot (this was the most stable hour during the day).

Noon to 1 p.m.—fell 1 square, or 1/20th of a foot.

1 p.m. to 2 p.m.—fell 1/75 squares, or 7/80ths of a foot.

2 p.m. to 3 p.m.—fell .25 square, and then raised 1 square, for a combined movement of 1/16th of a foot.

3 p.m. to 4 p.m.—rose 2.5 square, or 1/8th of a foot.

4 p.m. to 5 p.m.—fell slightly, then rose 2.75 squares, and then fell .75 square, for a combined movement of 7/40ths of a foot.

5 p.m. to 6 p.m.—rose .75 square, then fell .75 square, then rose slightly, and then fell 1 square, for a combined movement of 1/8th of a foot.

6 p.m. to 7 p.m.—fell 2.5 squares, or 1/8th of a foot.

7 p.m. to 8 p.m.—fell .75 square, or 3/80ths of a foot.

8 p.m. to 9 p.m.—fell more than 1 square, and then rose .75 square, for a combined movement of 7/80ths of a foot.

9 p.m. to 10 p.m.—rose 2.25 squares, or 9/80ths of a foot.

10 p.m. to 11 p.m.—rose 1.5 squares, or 3/40ths of a foot.

11 p.m. to midnight—fell 1.5 squares, and then rose .25 square, for a combined movement of 7/80ths of a foot.

**Figure 9. Photograph taken from a point west of Farmington Bay, identified as No. 6 on photo-map, and showing mud flats and a portion of waterfowl impounding dike at left-center of photo; lake water is in upper left of photo. Exhibit P-6.**

At first blush, the foregoing tabulation might not seem to be too impressive. But it becomes impressive when translated into the resulting impact on the surrounding shorelands. Thus, the recorded line showing the changes in the surface elevation of the Lake during June 13 covers the combined total (equivalent) of 52 vertical squares. Since each square equals 1/20th of a foot, this translates into a total of 2.6 feet in vertical elevation. It is interesting now to see the effect that this fluctuation has on the rate of movement of the water, back and forth, over the mud flats.

Mr. Arnow testified that in the flatter areas one foot in elevation would represent 1.5 miles in distance (T. 34). Since one mile equals 5,280 feet, 1.5 miles equals 7,920 feet (the width of the "mud flat belt" inundated or exposed with each change of one foot in vertical elevation of the surface of the Lake). And since the water level fluctuations totalled the equivalent of 2.6 feet in vertical elevation on June 13, a total linear distance of 20,952 feet was invloved (2.6 x 7,920). And this would translate into 247,104 inches (12 x 20,952).

Comparing this with time, there are 86,400 seconds in a day (24 x 60 x 60); and so the water would ebb and flow over the mud flats at the rate of 2.86 inches per second (247,104 divided by 86,400). This is the *average* continuous rate of fluctuation for the entire day for the particular area of mud flats mentioned. During some hours the rate was faster and at other times it was slower.[1]

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[1]It is also interesting to note the land area involved in the June 13, 1967 fluctuations. Exhibit P-5 shows that, between the elevations of 4194 and 4195 feet above mean sea level, a change of one-tenth of a foot in the level of the Lake will inundate or

It should be observed, however, that Mr. Arnow testified that the 1.5 miles in horizontal distance per foot in elevation applied only to the flatter shorelands, and so the 2.86 inches per second would not be an average rate of movement over the entire shoreland area. However, in those areas where the shorelands are only one-tenth as flat as those described by Mr. Arnow, the rate would still be more rapid than one-quarter (actually 2.86) inch per second—clearly a perceptible process.

## II. SPECIAL MASTER'S EVALUATION OF LAKE'S UNIQUE PHYSICAL CHARACTERISTICS

### A. *Emphasis on Unique Nature*

The Special Master's report reflects a careful evaluation of the testimony and the exhibits and a scholarly analysis of the common law principles of reliction. One of the most persuasive elements of that report is the

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expose 4,000 acres of mud flats. Thus, one foot will inundate or expose 40,000 acres, and 2.6 feet (the total fluctuation for June 13) would equal 104,000 acres. Of course, this figure represents the total area across which the water moved, and since the water moved back and forth across the same mud flats several times, the same acreage must be counted each time the water encroached upon it or withdrew from it.

But the plain and simple fact is that the fluctuating water level rose and fell to cover and uncover more than 100,000 acres in a single, "average" day. This would approximate a strip of land 1.5 miles wide stretching from Washington, D.C. to Richmond, Virginia.

And when the Lake fluctuates in the neighborhood of 4196 feet above sea level (about 1 foot higher than the June 13, 1967 level, and about 5 feet lower than the present level), more than twice that amount of mud flats would be involved: 218,400 acres (Exhibit P-5) (this assumes a gage recording showing fluctuations identical to the June 13, 1967 reading). And this would be more acreage than a strip of land 500 feet wide stretching from New York to Los Angeles. All covered or uncovered during a single day! And a day for which the official records would show a single elevation reading, as if the Lake had remained at a stable, non-fluctuating level during the entire day.

Special Master's conviction that the doctrine of reliction simply does not fit the unique mud flats surrounding the Great Salt Lake. A few references to the report will illustrate this conviction.

At page 8, the Master observes that:

> The flat shorelands are vast mud flats barren of any vegetation due to the high salinity of the Lake, and are used for nothing except recreation and as evaporation ponds for extracting minerals and salts. [Citing T. 33.]

With respect to the movement of the lake's waters over these barren mud flats, the Master notes:

> The *unique nature* of the area causes a gradual and slight change in the elevation of the Lake to result in a much greater alteration of the relation of the water to the land. This is demonstrated by the statistical data which has been charted from the records, partially analyzed above and more fully disclosed by the Exhibits which chart more fully the constant movements of the waters and the effect of these on the land, annually, seasonally, monthly, daily and hourly. (R. 18-19) (Emphasis added.)

Commenting on the "special relation" which the waters of the Lake bear to the adjacent mud flats, the Master concluded:

> The doctrines of accretion and reliction contemplate ambulation in title boundaries; but the valuable features of riparian ownership, particularly those incident to maintaining access to the water, and the compensation theory referred to in *Bonelli, supra*, 414 U.S. at 326, seem to the Special Master to envisage a situation different from the *special relation of the waters of the Great Salt Lake to the riparian land*. Such a relation seems inconsistent with the stability which

> should pertain to a change in title by operation of law. (R. 25-26) (Emphasis added.)

The Master also seemed impressed with the "unique and special conditions" which prompted the Utah Supreme Court to hold that the doctrine of reliction did not apply to the mud flats around the lake:

> It is interesting to compare this statement of 1824 [referring to *The King v. Lord Yarborough*, 107 Eng. Rep. 668 (K.B. 1824)] with that of the Supreme Court of Utah in 1971 in *Utah v. Hardy*, 26 Utah 2d 143, 486 P.2d 391. Although Utah law does not govern this case, the United States in its brief before the Special Master rec-

**Figure 10. Photograph looking northeast toward Clearfield Naval Supply Depot from a point near the shoreline identified as No. 7 on the photo-map. Exhibit P-6.**

ognizes that the opinion of the Supreme Court of Utah defines reliction "in terms perfectly consonant with the federal common law":

> The doctrine of "reliction" in the law covers the situation involving the title to the land which emerges from beneath a body of water caused by a recession of the waters. The law of reliction is generally the same as that of accretion as it concerns contiguity, imperceptibility and naturalness of the process of the water's recession and the exposure of additional land. The law of reliction, as well as accretion, has evolved over a long period of time and is based upon the rights of a riparian owner to have access to the water adjacent to his property.

26 Utah 2d at 144-45, 486 P.2d at 392-93. The court held, however, after reviewing the "unique and special conditions" affecting Great Salt Lake,

> . . . that the recession of the waters from the land [there in question] has not been natural, gradual and imperceptible, and that the doctrine of reliction should not be applied (R. 12-13).

Speaking with reference to fluctuations during a ten-year period from 1953 to 1963, the Master noted that a perciptible area was exposed but that because of the "constant fluctuations up and down" perhaps there had been "no particular moment" when there was "a separate perceptible component of this total movement of exposure." (R. 19). The Master said that this characterization placed the matter in a "light most favorable to the United States," but that, even so, reliction should not be applied because of the "unique character" of the Lake:

To accept this, however, as meeting the imperceptible element of reliction, would in the view of the Special Master be an adaptation of that element of the doctrine to the *unique character* of the Great Salt Lake rather than to apply the imperceptible element as it has developed in the law. While there are indeed features in the overall process and its result, thus described, which arguably favor the Court's acceptance of the imperceptible element of the doctrine, nevertheless the continued rise and fall of the elevation of the Lake on an hourly, daily and weekly basis, *is unprecedented in the historical development and previous application of this element of the doc-*

**Figure 11. Photograph looking north from point identified as No. 8 on photo-map. Dikes and water are part of Howard Slough Waterfowl Management Area. Exhibit P-6.**

> *trine*. This of course is due to the *unique character* of the area, with the erratic movements of the Lake over the land, almost constantly responding in exaggerated reflexes to slight alterations in the level of its surface. *The unique situation resists doctrinaire classification*. (R. 19-20) (Emphasis added.)

It will be noted that the Special Master used the word "unique" three times in the above paragraph, emphasizing that there was no historical precedent or practical justification for applying reliction to the peculiar physical characteristics of the Great Salt Lake. It is not surprising that the Master concluded his discussion with the following paragraph:

> The doctrine of reliction does not seem to furnish a sound basis for resolution as of June 15, 1967, of the respective interests of the two sovereigns in and about this *unusual* body of water. (R. 27) (Emphasis added.)

Nor is it surprising that Conclusion of Law No. 3 provides:

> 3. The exposure of the lands referred to occurred in the course of such *unique changes* in the relation of the waters of the Lake to the shorelands as not to come within the doctrine of reliction. (R. 32) (Emphasis added.)

There is no doubt that the Special Master intended to emphasize that in his judgment this case must be decided on its peculiar facts, and that those facts present such a unique situation that there is no justification for applying the doctrine of reliction. Some further mention should be made, however, of the Master's specific attention to the two most basic elements of reliction: (1) a gradual and imperceptible exposure of land, and

**Figure 12. Photograph taken from point described as No. 9 on photo-map. Lake waters are at bottom and left side of photo. Ogden Bay Waterfowl Management Area is at top and right of photo. Exhibit P-6.**

(2) a reasonably permanent or stable character of the land exposed. Those two elements are discussed below.

B. *Gradual and Imperceptible*

At pages 14-15 of his report, the Special Master summarizes the argument which the Government advances in support of its claim that the water movement is gradual and imperceptible. The Master notes that if the "average yearly stage" of the Lake is used to measure water movement, that about 50,000 acres of shoreland would be exposed or inundated each year with an assumed change in elevation of .69 feet; and further notes the Government's argument that the rate of movement would be a little over 1½ inches per hour. The Master then notes that the Government's analysis is not sound because it fails to account for the variations in the steepness of the shorelands:

> It should be noted that in distributing the 50,000 acres of shoreland among the 350 lineal miles consideration was not given to the fact that the shorelands are not uniformly affected by change in the level of the Lake. The flat shorelands surrounding the Lake are interrupted at different points by small mountain ranges set back at varying distances from the shoreline. For example, on the north side of the Lake the Promontory Mountains form a headland of about 30 miles long which juts southward in toward the center of the Lake. See Exhibit P-1. In the southeastern sector of the Lake rise the Oquirrh Mountains and the Stansbury Mountains. Several mountain clusters also exist within a few miles of the western shore of the Lake. Among these are the Lakeside Mountains and Terrace Mountains. The eastern and northwest shorelands of the Lake, however, are almost entirely dominated by salt and mud flats. See Report of Special Master

Ganey, October 26, 1970, at 10-13; Exhibit P-1. The various mountain ranges form an irregular barrier to a uniform spread of the water when the Lake is on the rise. Mr. Arnow refers to differences in consequence of a change of 5 feet in the Lake elevation. For instance, at those points on the west side where the flat shorelands dominate, water could rush inland for 7½ miles, whereas such a change would cause "very little change—no change" where the mountains are. (Tr. at 34.) (R. 15-16.)

**Figure 13. Photograph is taken from point identified as No. 10 on photo-map, showing mud flats in area of Lucin Cutoff. Ponds and dikes in upper part of photo are part of the mineral extraction operation of the Great Sale Lake Minerals and Chemicals Corporation. Exhibit P-6.**

Then, in note 16 at page 16 of the report, the Special Master explains more explicitly the error of the Government's calculation:

> When the United States speaks of an average movement along the shore of a little more than 1½ inches per hour there is not reflected the fact that the Lake's movement along that part of its shoreline where mountains rise is less than where there are vast stretches of flat land where the water can rush overland almost unimpeded. Utah, however, does not discuss this inaccuracy, as it seems to the Special Master, in the United States' calculations.

The Special Master then further notes that the Government's use of "annual averages" is erroneous because it fails to account for the actual water fluctuations:

> The movements of the water during any year, and the resulting exposure or inundation of the shorelands, are not mirrored in the annual averages. Thus, an examination of Exhibits P-9 and P-10 discloses that the elevations of the Lake on June 1 and November 1, from 1850 to 1972 generally ranged between one and two feet within a six-month span, exposing or inundating about 50,000 to 150,000 acres of the shallow mud flats. However, the yearly average of these movements is not their visual movements. Changes in elevation may be gradual and imperceptible but are only a part of a process the whole of which includes the effect upon the shorelands of such changes. If the effect on the shorelands is not imperceptible then the whole of the process is not imperceptible within the meaning of the doctrine of reliction. (R. 16-17.)

The Master further underscores this same error in the Government's calculation of the rate of the water movement, observing at page 18 of the report:

If the actual change since statehood in the relation of the waters of the Lake to the adjoining land had been as calculated by the United States, only a little over 1½ inches per hour, the position of the United States that the process has been imperceptible would be substantial, but this statement of the rate of change in the relation of the water level to acreage affected does not reflect the actual changes as they occurred. Changes in the level of the Lake are gradual. However, the imperceptibility feature of reliction is to be judged according to the actual effect on the shorelands of such a change. The unique nature of the area causes a gradual and slight change in

**Figure 14. Photograph is taken from point identified as No. 11 on photo-map, showing mud flats west of Willard Bay. Wasatch Mountains are in the background. Exhibit P-6.**

> the elevation of the Lake to result in a much greater alteration of the relation of the water to the land. This is demonstrated by the statistical data which has been charted from the records, partially analyzed above and more fully disclosed by the Exhibits which chart more fully the constant movements of the waters and the effect of these on the land, annually, seasonally, monthly, daily and hourly. (R. 18-19.)

The Special Master thus concluded that to accept the argument of the Government and to apply the doctrine of reliction to the mud flats around the Great Salt Lake would be inconsistent with the "imperceptible element as it has developed in the law" (R. 19), and that the nature of the mud flats is "unprecedented in the historical development and previous application of this element [gradual and imperceptible criterion] of the doctrine." (R. 19). He further emphasized that the unique nature of the mud flats and the adjacent water "resists doctrinaire classification," and that he was "unable to find that the recession of the Lake to its level of June 15, 1967, occurred in a gradual and imperceptible manner." (R. 20).

The Findings of Fact are in accordance with the evidence and with the foregoing discussion of the Master. Findings 13 through 16 are most pertinent with respect to the rate of water movement over the shorelands:

> 13. The shoreline of the Lake is 350 lineal miles. If the shoreline were of about equal flatness and the 50,000 acres referred to in Finding 12 were distributed equally among the lineal miles, the average movement along the shore would be about 1200 feet annually, about 3 feet per day, or a little over 1¼ inches per hour.

These calculations do not reflect the actual movements of the water as they occur but are based on averages calculated subsequent to the actual movements.

14. The shorelands are not of equal flatness or width of flatness, due to the mountains which are adjacent to some parts of the Lake, shown on Exhibit P-1, and other mountains which border the Lake. The movement of the waters along the lineal miles of shoreland is affected by mountains some of which, although not at the edge of the water or obtruding upward in it, border the shorelines at a distance near enough to affect the

**Figure 15. Photograph is taken from point identified as No. 12 on photo-map, looking south along east shore of Promontory Point and showing mud flats, with lake waters on left and bottom of photo. Fremont Island is in upper left corner. Exhibit P-6.**

spread of the waters in a manner not reflected in the calculation described in Finding 13.

15. By reason of the conditions described in Finding 14 above the calculations reflected in Finding 13 that the average movement along the shore would be about 1200 feet annually, about three feet per day, or little more than 1½ inches per hour, are to an unascertained degree an under-estimate of the rate of movenment over extensive areas of shore, a rate of movement which the Special Master cannot find on this record to be imperceptible.

16. The continuous rise and fall of the elevation of the Lake, though gradual, is reflected in a continuous movement of the waters to and fro across the shorelands, apart from the effects of the wind. These movements are often perceptible. (R. 30.)

C. *Reasonable Permanence*

The Special Master emphasized that the criteria for reliction must all be satisfied before the doctrine can be applied, stating that:

> . . . even were the recession to June 15, 1967, gradual and imperceptible, the relation of the water to the shorelands at that date was not of the reasonably permanent or stable character essential, in the view of the Special Master, to application of the doctrine of reliction. . . . (R. 20).

After discussing the factors which bear upon the level of the Lake and the fluctuation of its waters, the Master concluded that the Lake "is continually fluctuating due to these interrelated factors" (R. 9) and then observed:

> The fluctuations have followed no set pattern on either a long range or short range basis, whether

> measured at five year intervals, one year intervals, six month intervals, or even daily or hourly intervals. [Citing Exhibits P-8 through P-17] (R. 9-10.)

The Master analyzes in some detail many of the exhibits which show the failure of the water level to stabilize with any reasonable degree of permanence. He also indicated that the exhibits discussed in the report are only a few of many that he had considered:

> The above are a few of many detailed records which have been graphed and charted upon Exhibits placed in the record. Similar chartings of

**Figure 16. Photograph is taken from point identified as No. 13 on photo-map, showing mud flats in area west and north of Bear River Migratory Bird Refuge. Little Mountain is in top-center. Exhibit P-6.**

> daily and hourly fluctuations in elevation and accompanying effect on acreage are available in the Exhibits, although only some of those specifically referred to are reproduced in this Report. (R. 18, note 20.)

The Special Master concludes that while the doctrines of accretion and reliction indeed contemplate ambulation in title boundaries, the "special relation" of the waters of the Great Salt Lake to the riparian land would make reliction "inconsistent with the stability which should pertain to a change in title by operation of law." (R. 25-26). The Master further thought that Congress intended that Utah pay the United States for the mud flats only if there was a reasonably permanent exposure:

> In providing for payment by Utah to the United States of such interests as the United States might be found to have conveyed to the State by the quitclaim deed of June 15, 1967, the statute of June 3, 1966 is indicative of a congressional assumption that such payment would be required only if the situation at that date was reasonably permanent in nature rather than temporary, as the history of the Lake has demonstrated it to have been. (R. 26.)

Accordingly, the Master found that there had been no reasonable stability or permanence in the land exposed:

> The various factors above described and their interaction one upon another cause a continuous change in the elevation of the Lake. This causes a constant fluctuation of its waters, in both a receding and inundating character with respect to the flat shorelands. (R. 28, Finding No. 6.)

And in Finding of Fact No. 19, the Master declared:

> The land referred to as exposed at the time of the quitclaim deed, which at statehood was part of the bed of the Lake, was not an addition of a reasonably permanent or stable character to the uplands, title to which is in the United States. The land in question has been almost entirely re-inundated by a spreading of the waters of the Lake by a movement which began in 1963, was in progress at the date of the quitclaim deed, and continued to the time of the hearing in this case before the Special Master in February, 1973. (R. 31.)

Conclusion of Law No. 3 is entirely consistent with the evidence and the Findings of Fact:

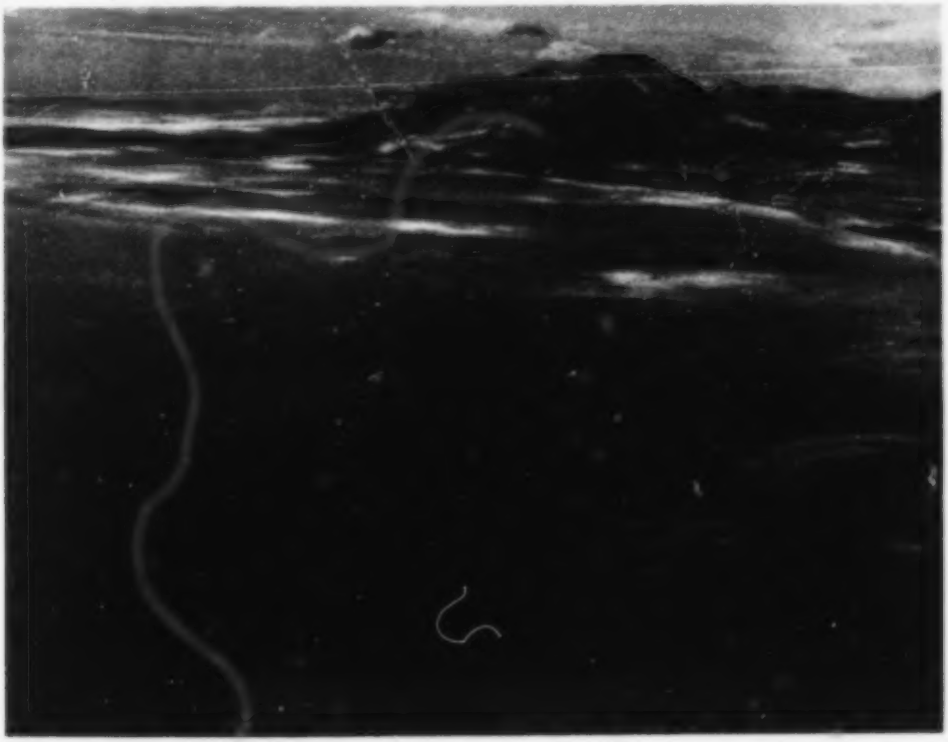

**Figure 17. Photograph is taken from point identified as No. 14 on photo-map, showing lake waters and mud flats in area on west side of Promontory Point. Mount Tarpey is at top-center. Exhibit P-6.**

> The exposure of the lands referred to occurred in the course of such unique changes in the relation of the waters of the Lake to the shorelands as not to come within the doctrine of reliction. *These changes were not at the date of the quitclaim deed of such a reasonably permanent or stable character as to warrant application of the doctrine.* (R. 32) (Emphasis added.)

D. *Evidence Viewed in Light Most Favorable to United States*

In concluding that the reliction claim of the United States had no merit, the Special Master viewed the evidence in a light most favorable to the United States. For example, on page 19 of the report, he declares:

> To place the matter thus disclosed in a light most favorable to the United States is to consider what may be referred to as the net result of the movements of the Lake over a substantial period of time. (R. 19).

The Master then proceeded to evaluate the evidence in that light, and found it wanting. Another example of the Master's acceptance of the Government's assertions for purposes of analysis has to do with the 350-mile shoreline. That figure is grossly in error, and it greatly distorts the Government's calculation of the speed of the water movement over the shorelands, as explained below.

No evidence was introduced at the hearing before the Master concerning the length of the "shoreline" in the area is dispute. After the hearing, the Government filed an answering brief in response to a brief filed by the State of Utah, and on page 7 of that brief asserted that the Lake had a shoreline of 350 miles, and cited

page 474 of the 1973 World Almanac (not in evidence) as the supporting authority. The Government now uses identical language in repeating its assertion on page 12 of its brief filed with this Court. The critical fact, however, is that the "shoreline" mentioned in the World Almanac is the surveyed meander line, and not a shoreline located anywhere near the land now in dispute. Perhaps some further explanation is required.

As the Government knows, the surveyed meander line of the Lake is the only "boundary" indicated on federal, state, and county maps and plats (see exhibit

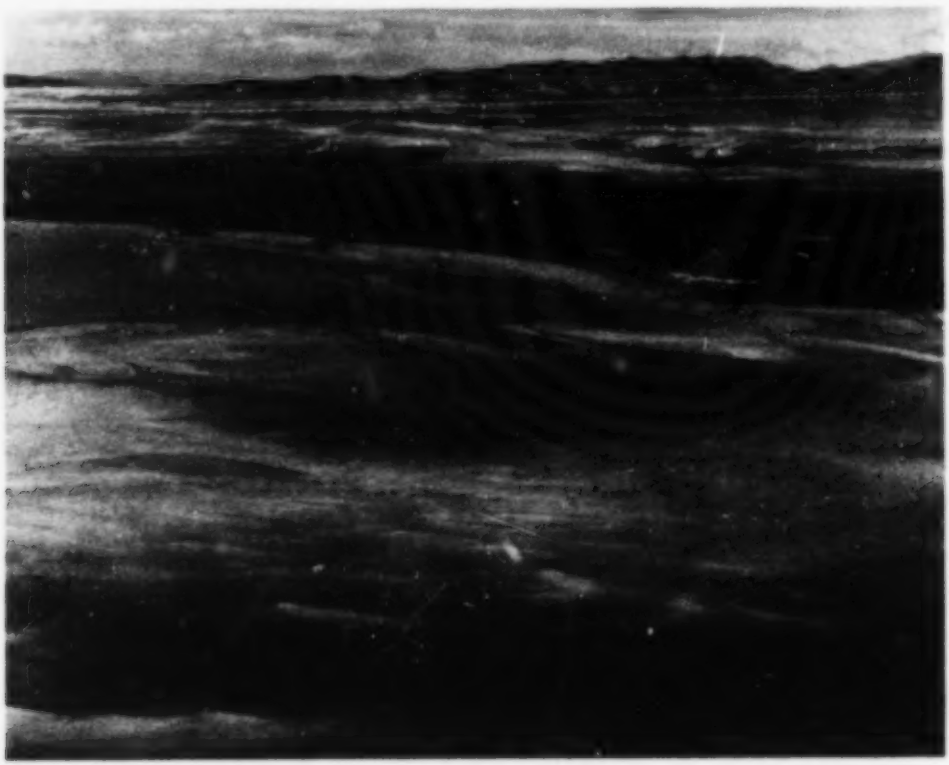

**Figure 18. Photograph is taken from point identified as No. 15 on photo-map, looking northeast from shoreline west of Golden Spike Monument, showing lake waters in foreground and mud flats in center. Exhibit P-6.**

P-22, at page 102), and it is this meander line that is always referred to in reference publications such as almanacs. The surveyed meander line is located at an elevation of about 4205 feet in most areas, but in some places may be somewhat higher than that (see exhibits P-1, P-2, and D-2). The area now in dispute is located between the elevations of 4194.9 and 4200.8 feet above mean sea level—or more than four feet vertical elevation below the surveyed meander line—and in some areas one foot in vertical elevation equals 1½ miles in horizontal distance (T. 34). One of the Government's own exhibits indicates that in most areas the belt of land between the area in dispute and the surveyed meander line is several miles in width—and in some places exceeds seven miles in width—and that any contour line at the highest elevation of the land in dispute would be much shorter than the surveyed meander line (Exhibit D-2).

Thus, the reference in the 1973 World Almanac to the length of the surveyed meander line, as distinguished from the length of any contour line in the area now in dispute, is a serious error because the difference between the two is very substantial.[1]

Therefore, of all the errors woven into the Government's calculation of an "imperceptible" rate of water

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[1]The Government could easily have acquired the correct figures for the length of both the surveyed meander line and a contour line at 4200.8 by a simple telephone call to the USGS. While obtaining post-trial information in this manner for use in argument within a brief might be questionable, it certainly would be much more accurate than the post-trial reference to the 1973 World Almanac to "prove" a "fact" in the Government's theory of the case. The error in the almanac citation might even cast some doubt on the accuracy of the speed of the slowest known snail, which the Government discovered at page 101 of the 1974 edition of the Guiness Book of World Records (Government's brief, page 21).

**Figure 19. Photograph is taken from point identified as No. 16 on photo-map, looking northwest toward Locomotive Springs Waterfowl Management Area, and showing lake waters and mud flats. Exhibit P-8.**

movement, the reliance on a 350-mile shoreline could be one of the most crippling because it would eliminate one of the essential elements necessary for the Government to compute a rate of speed.[2]

Nevertheless, the Special Master accepted the fig-

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[2]The Government's calculation of 1½ inches per hour is based on a shoreline of 350 miles and an average net annual difference in the level of the Lake of .69 feet (no relation whatsoever to either the actual water movement or the actual net difference in the level of the Lake for any given year). The Government's calculation of 15 inches per hour is based on the actual net annual change in the level of the Lake during the 1906-07 water year. Even this latter figure is misleading because it erroneously assumes that the only movement of the water level was from an elevation of 4196.83 to 4198.69, when in fact the water was constantly fluctuating back and forth over the shorelands (see exhibit P-15 and R. 16-17).

As a matter of fact, even the seasonal fluctuations of the lake level are ordinarily much more rapid and substantial than the 1.86 feet which the Government claims is the maximum annual change. As an example of such seasonal fluctuations, during the twenty-three month period between November 1, 1970 and October 1, 1972, the Lake rose and fell a total of 8.70 feet in elevation (and this does not include the continuous fluctuations during shorter intervals). The impact of these seasonal fluctuations on the mud flats is discussed by the Special Master at page 17 of his report, as follows:

> The fluctuations at monthly intervals from 1896 to February 1, 1973, are shown on Exhibits P-11 and P-12. Changes in elevation are noted on the former. The latter translates those changes into acreage of shorelands affected. Study of these Exhibits together with Exhibits P-13 and P-14, and using as illustrative the period from November 1, 1970 to June 15, 1971, shows that the rise in the level of the Lake flooded over 450,000 acres of the flat shorelands, followed by a recession for three and a half months, leaving inundated about 175,000 acres, rising again to inundate some 380,000 acres in the following seven and a half months. The Lake then receded for four and a half months, leaving inundated some 200,000 acres.

A further error—though minor—which the Government advances is its claim that the "most extreme movement in the most extreme year" was 2.2 miles horizontal distance in the 1906-07 water year (Government's brief, pages 12-13). While the 2.2 figure is wholly erroneous for the reasons noted by the Master and because of the Government's selection of the wrong shoreline as a base for computation, and as explained in the text, the further error to be noted here is that the Government ignored the uncontradicited testimony of Mr. Arnow (the parties' joint witness) to the effect that in some areas one foot in vertical elevation represents a horizontal distance across the mud flats of 1½ miles (T. 34). Thus, even under the Government's own "averaging" technique, the 1.86 feet in vertical elevation would represent 2.79 miles in horizontal distance (rather than 2.2 miles) as the Government's "extreme" case.

ure of 350 miles as the length of the shoreline for the purpose of weighing the Government's argument on the rate of the water movement, and still found that argument to be without merit (R. 15-16, 30).[3]

It is abundantly clear that the Special Master not only professed to view the evidence in a light most favorable to the Government, but that he in fact went to

[3]Finding of Fact No. 13 on page 30 states that the "shoreline of the Lake is 350 lineal miles." The 350-mile figure is a reasonably close approximation of the length of the surveyed meander line, and Utah considers that line to be the true "shoreline." For that reason the finding is not in error. The error is in the Government's computation which equates the shoreline with a contour line at an elevation of 4200.8 feet.

**Figure 20. Photograph is taken from point identified as No. 17 on photo-map, showing part of Locomotive Springs Waterfowl Management Area, mud flats, ponds and dikes. Exhibit P-6.**

extreme lengths to give careful consideration to every contention made by the Government. Even so, the Master concluded that the doctrine of reliction simply had no application to the mud flats around the Great Salt Lake.

## III. THE GOVERNMENT'S ASSIGNED ERRORS OF "LAW"

### A. *Preface*

As noted in the Summary of Argument, the issues in dispute are factual rather than legal in nature. The Special Master has ably and accurately evaluated the legal criteria for applying the doctrine of reliction. (R. 5-27). The Government does not object to that legal analysis as such, but in fact acknowledges that the report "in general correctly states the federal law of accretion." (Government's brief, page 14). The Government then says, however, that the Master made "two errors of law" in applying the legal standard which he had correctly stated. (Government's brief, page 14). These alleged errors are that the Master (1) regarded seasonal changes in the water level as affecting the boundary because they were perceptible, and (2) concluded that reliction requires that a new boundary be reasonably permanent or stable. (Government's brief, pages 14-15).

These two assigned errors of "law" will first be examined, to show that they are actually challenges to the Master's view of the unique characteristics of the Lake. Thereafter, it will be noted that the Master's characterization of the criteria for reliction is fully consistent with the decisions of this Court.

B. *The Government's First Assigned Error of "Law"*

The Government's first question of "law" is misstated, because the Master did not conclude that seasonal changes affect the boundary. He concluded the exact opposite—that seasonal changes do not affect the boundary. Thus, when the Government cites *Alabama v. Georgia*, 23 How. 505, *Sapp v. Frazier*, 51 La. Ann. 1718, 26 So. 378, *Hillebrand v. Knapp*, 65 S.D. 414, 274 N.W. 821, and *Anderson v. Ray*, 37 S.D. 17, 156 N.W. 591, all for the proposition that seasonal changes

**Figure 21. Photograph is taken from point identified as No. 18 on photo-map, looking southwest from Locomotive Springs, showing mud flats in center and at right, with lake waters in upper left of photo. Exhibit P-6.**

in water levels do not affect boundaries, the Government is simply trying to knock down a straw man that it has created. (Government's brief, page 15-16). The Master and the parties all agree that seasonal changes do not affect the boundary. The real issue which the Government is trying to raise is not that seasonal changes do not affect the boundary, but that the boundary changes once each year in accordance with the average annual water fluctuations. (See Government's brief, page 10). The Government cites no authority whatsoever in support of this proposition, but that is understandable since there is no authority which sustains that proposition.

Thus, the Government has wholly misstated the Master's finding that the unique physical characteristics of the Lake have not caused boundaries to change with the fluctuation of the waters. And it is obvious that the issue here involved is not a question of law as to whether seasonal changes affect boundaries, but is a factual question as to whether the unique physical characteristics of the Lake are consistent with the gradual and imperceptible requirement of reliction. These unique characteristics and the Master's evaluation of them are discussed at length in points I and II of this brief, *supra*.

### C. *The Government's Second Assigned Error of "Law"*

The second of the two errors of "law" as assigned by the Government is the charge that the Master erred in concluding that the water fluctuations over the shorelands of the Great Salt Lake revealed no reasonable permanence. Again, this is essentially a question of

fact. The Special Master did not say that lands had to be exposed with absolute permanence in order for the doctrine of reliction to apply, but only that there need be some "reasonably permanent or stable" change (R. 20, 23-24), and that to apply the doctrine here would be "inconsistent with the stability which should pertain to a change in title by operation of law." (R. 25-26).

It was this reliance on the unique characteristics of the Lake which persuaded to Master to find, as he did in Finding of Fact No. 19, that:

**Figure 22. Photograph is taken from point identified as No. 19 on photo-map, looking southeast toward Dolphin Island and showing mud flats in center and lake waters in background and upper right of photo. Dolphin Island is the dark spot of land extending into the photo from upper left. Exhibit P-6.**

> The land referred to as exposed at the time of the quit-claim deed, which at statehood was part of the bed of the Lake, was not an addition of a reasonably permanent or stable character to the uplands, title to which is in the United States. (R. 31.)

And the Master expressly emphasized again in Conclusion of Law No. 3 that it was the "unique changes" in this case that compelled the conclusion that there was not "such a reasonably permanent or stable character as to warrant application of the doctrine [of reliction]." (R. 32).

Thus, the question of reasonable permanence is a determination that must be made in light of the facts, and in deciding that there had been no reasonable permanence the Master considered the testimony of the witnesses and the numerous exhibits, including photographs. The Government is on extremely weak footing in its effort to convert this factual question to one of "law" in order to prove error on the part of the Special Master.

Again, the facts on which the Master based his determination are reviewed at some length under points I and II of this brief, *supra*.

It might be noted, as an incidental matter, that the Government makes some erroneous factual claims with respect to the concept of reasonable permanence. Thus, on page 18 of its brief the Government claims that "the land being reinundated by the present rise in the Lake has been dry for the last 22 to 43 years." The Government cites exhibit P-4 in support of that claim, but that exhibit shows no such thing. To the contrary, it shows that every acre of the land in dispute has been

water-covered more recently than 22 years ago (much less 43 years ago). As a matter of fact, the lower part of the land in dispute has been water covered each and every year since statehood, with the exception of a five year period (1961-65) when the Lake reached its historic low, and the very highest portion of the land in dispute has been water covered during 29 of the years since statehood (Exhibit P-4)—and is water-covered today. The only conceivable way in which the Government's assertion could be true is if the Government is referring to land at a higher elevation than the land

**Figure 23. Photograph is taken from point identified as No. 20 on photo-map, looking southwest from lakesbore near Strongknob Mountain, showing mud flats and the Southern Pacific railroad tracks which bisect the photo diagonally. Exhibit P-6.**

now in dispute, and concerning which the Master made no findings or conclusions. It seems hardly likely that the Government would advance such an argument, but if it has, there is an obvious problem of relevance.

### D. *Criteria of Gradual and Imperceptible, and Reasonable Permanence*

The Special Master concluded that the doctrine of reliction should apply to the mud flats surrounding the Great Salt Lake only if the lands in dispute had been exposed in a gradual and imperceptible manner and if the exposure had some prospect of reasonable permanence. These criteria are the essence of the doctrine of reliction. But the Master did not view them as absolutely rigid or inflexible. Indeed, he expressly noted that reliction might occur even though the process is perceptible (R. 13)[1] and that the degree of permanence need not be absolute but need only be reasonable in the sense that it is consistent with the required stability of real estate titles. (R. 25-26). Even in view of this extremely liberal view of the doctrine of reliction, the Master simply could not find that the lands in question had been exposed in a gradual or imperceptible manner or that the areas exposed had any reasonable degree of permanence—all because of the truly unique character of the Lake and its environs.

The decisions of this Court fully support the Master's analysis of the criteria to be found before applying the doctrine of reliction. *Arkansas v. Tennessee*, 246 U.S. 158 (1918); *Bonelli Cattle Co. v. Ari-*

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[1]The only case which has said that the reliction process need not always be imperceptible is **Bonelli Cattle Co. v. Arizona**, 414 U.S. 313 (1973).

*zona*, 414 U.S. 313 (1973); *County of St. Clair v. Lovingston*, 90 U.S. (23 Wall.) 46 (1874); *Hughes v. Washington*, 389 U.S. 290 (1967); *Jefferis v. East Omaha Land Co.*, 134 U.S. 178 (1890); *Jones v. Johnston*, 18 How. 150 (1856); *Mississippi v. Arkansas*, .....U.S..... (No. 48 Orig., February 26, 1974); and *Philadelphia Co. v. Stimson*, 223 U.S. 605 (1912). The Special Master's report presents a scholarly, perceptive and practical evaluation of these cases (as well as lower federal court decisions and some state cases), and no useful purpose would be served by repeating that evalu-

**Figure 24. Photograph is taken from point identified as No. 21 on photo-map, looking south toward Timpie Springs Waterfowl Management Area, showing Stansbury Mountains in background and lake waters and mud flats in foreground. Exhibit P-6.**

ation here. And this is particularly true since the dispute resolves not around the law announced in those cases, but the application of the law to the peculiar and unique physical characteristics of the Great Salt Lake and its surrounding shorelands.

## IV. BURDEN OF PROOF AND SCOPE OF REVIEW

### A. *Preface*

The Government announces the rather surprising conclusion on page 21 of its brief that "the law requires a specific finding that the movement [of the water] was perceptible for reliction not to apply." The law contains no such requirement, and the Government cites no authority whatsoever in support of its statement. The Government then goes on, at pages 21-22 of its brief, to argue that if the question is a choice between avulsion and accretion, and there is not sufficient evidence to resolve the question, then an accretion will be presumed. That proposition has no relevance to this litigation since the question of avulsion was never raised as an issue, and the Special Master specifically explained that "neither avulsion nor erosion is involved." (R. 10).

### B. *Burden of Proof*

The Government has simply tried to reverse the burden of proof by asserting that reliction must inexorably apply unless there is a specific finding that the water movement was perceptible. But the exact opposite is true—the Government fails in its claim of reliction unless it proves (and the Master finds) that the land in question was exposed imperceptibly.

This is so because Utah filed the present action and proceeded to prove that it acquired ownership of the lands in dispute, against the denials and opposition of the Government. (403 U.S. 9; 406 U.S. 484). The Government thereafter asserted its claim of reliction, claiming that the Government had divested Utah of its adjudicated title. Since the Government thus asserts title through reliction, it has the burden of proving it. It matters not whether a party is denominated as a plaintiff or defendant, because each has the burden of proving their affirmative claims of title. *Oklahoma v.*

**Figure 25. Photograph is taken from point identified as No. 22 on photo-map, showing area of shoreline southwest from south end of Stansbury Island. Stansbury Island is in center-right, Stansbury Mountains are in background, and mud flats are at center of photo. Exhibit P-6.**

*Texas*, 260 U.S. 606 (1922); *Shapleigh v. United Farms Co.*, 100 F.2d 287 (5th Circ. 1938).[1]

The United States failed to meet its burden of proof, and the Master declared in Finding of Fact No. 18 that:

> . . . the Special Master is unable to find that the progress of such recession or inundation is at a rate which would be imperceptible as it occurs. (R. 31).

Moreover, in Finding of Fact No. 16 the Master flatly declared:

> The continuous rise and fall of the elevation of the Lake, though gradual, is reflected in a continuous movement of the waters to and fro across the shorelands, apart from the effects of the wind. *These movements are often perceptible.* (R. 30) (Emphasis added).

C. *Scope of Review*

As the trial arm of this Court, the Special Master listened to and observed the witnesses, examined the ex-

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[1]The rule is universally applied. See **Babcock v. Dangerfield**, 98 Utah 10, 94 P.2d 862 (1939); **Eltzroth v. Ryan**, 89 Cal. 135, 26 Pac. 647 (1891); **Jones v. Schmidt**, 170 Neb. 351, 102 N.W.2d 640 (1960); **Stratbricker v. Junge**, 153 Neb. 885, 46 N.W.2d 486 (1951); **Durkin v. Ward**, 66 Or. 335, 133 Pac. 345 (1913); **State v. Johnson**, 278 N.C. 126, 179 S.E.2d 371 (1971); **In re East River Drive Borough of Manhattan**, 289 N.Y.S. 433, 159 Misc. 741 (1936); **Pallas v. Dailey**, 169 Neb. 533, 100 N.W.2d 197 (1970); **Elizabeth v. Central R.R. Co.**, 79 N.J.L. 542, 77 Atl. 529 (1910); **Normanoch Ass'n., Inc. v. Baldasanno**, 40 N.J. 113, 190 A.2d 852 (1963); **In re Broadway in Borough of the Bronx**, 122 N.Y.S. 281 (1910); **Plummer v. Marshall**, 59 Tex. Civ. 650, 126 S.W. 1162 (1910); **Nolte v. Sturgeon**, 376 P.2d 616 (Okla. 1962); **Wilson v. Watson**, 144 Ky. 352, 138 S.W. 283 (1911); **Gaskill v. Cook**, 315 S.W.2d 747 (Mo. 1958); **City of Los Angeles v. Anderson**, 206 Cal. 662, 275 Pac. 789 (1929); **Wright v. City of Council Bluffs**, 130 Iowa 274, 104 N.W. 492 (1905); **Peterson v. City of St. Joseph**, 348 Mo. 954, 156 S.W.2d 691 (1941); **Sears v. Murdock**, 59 Or. 211, 117 Pac. 305 (1911); 65 **Am. Jur. 2d., Quieting Title**, §§78-79 (1972); 12 **Am. Jur. 2d., Boundaries**, §99 (1964).

hibits and other evidence, and made his recommended findings of fact and conclusions of law. His findings of fact and his judgments based on the unique factual characteristics should be accorded the same weight and presumption of correctness as is accorded the factual findings of federal trial judges. *Anderson v. Mt. Clemens Pottery Co.*, 328 U.S. 680 (1946); *Connecticut v. Massachusetts*, 282 U.S. 660 (1931); *Crawford v. Neal*, 144 U.S. 585 (1892); *Crowell v. Benson*, 285 U.S. 51 (1931); *Morgan v. Daniels*, 153 U.S. 120 (1894); *Morimura v. Taback*, 279 U.S. 33 (1929); *Nebraska v. Wyoming*, 325 U.S. 589 (1945); *Tilghman v. Proctor*, 125 U.S. 136 (1888); and *Washington v. Oregon*, 297 U.S. 517 (1936); and see also 5 *Am. Jur.* 2d, *Appeal and Error*, sec. 704 at 149-51.

## V. SOME IMPRACTICAL CONSEQUENCES OF APPLYING RELICTION

The Special Master concluded that there was no legal basis or justification for applying the doctrine of reliction to the mud flats surrounding the Great Salt Lake. Beyond that, there are several practical factors which support the Master's legal analysis, and a few of them should be noted.

### A. *Stability of Real Estate Titles*

Utah has not only administered and managed the mud flats around the Great Salt Lake since statehood, but has invested substantial sums of money in the shorelands in reliance on its ownership, and has created property interests in others who likewise acted in reliance on the strength of the state's title.

Title examiners had little difficulty in concluding that the State could offer marketable title. After the present dispute created uncertainties as to the state's title to the Great Salt Lake shorelands, a well-respected title lawyer made the following observation:

> For over forty years, title examiners have relied on a Utah Supreme Court decision that the doctrine of accretion and reliction was not extant as to the beds of navigable waters in Utah. (Shearer, *Federal Land Grants to the States: An Advocate's Dream; A Title Examiner's Nightmare*, 14 Rocky Mountain Mineral Law Institute, 193-94 (1968)).

This uncertainty was, of course, a serious concern to the State, as the Governor indicated to Congress when he said that:

> The Government has tacitly agreed to the assumed State ownership until 1961. There is a basic unfairness in asserting a claim at this late date, particularly where, as here, the State has created rights in third parties who would be injured. (Exhibit P-22, p. 139).

In *The Propeller Genessee Chief v. Fitzhugh*, 12 How. 443 (1851), this Court overruled *The Thomas Jefferson*, 10 Wheat. 428 (1825), and extended admiralty jurisdiction to navigable inland waters. In so doing, the Court noted the importance of stability in real estate titles, and emphasized that its decision was limited to admiralty jurisdiction and would have no impact on established property rights:

> The case of the *Thomas Jefferson* did not decide any question of property, or lay down any rule by which the right of property should be determined. If it had, we should have felt ourselves bound to follow it notwithstanding the opinion

> we have expressed. For every one would suppose that after the decision of this court, in a matter of that kind, he might safely enter into contracts, upon the faith that rights thus acquired would not be disturbed. In such a case, *stare decisis* is the safe and established rule of judicial policy, and should always be adhered to. For if the law, as pronounced by the court, ought not to stand, it is in the power of the legislature to amend it, without impairing rights acquired under it. But the decision referred to has no relation to rights or property. It was a question of jurisdiction only, and the judgment we now give can disturb no rights of property nor interfere with any contracts heretofore made. The rights of property and of parties will be the same by whatever court the law is administered. (*The Propeller Genessee Chief v. Fitzhugh*, 12 How. 443 (1851)).

And the Special Master was aware of this concern when he observed that to apply the doctrine of reliction to the mud flats in dispute would be "inconsistent with the stability which should pertain to a change in title by operation of law." (R. 25-26).

### B. *Importance of the Public Trust*

Each State holds title to the beds and shorelands of navigable waters in a special trust relationship for the purpose of regulating and protecting public use for such purposes as navigation, fishing, and general recreation. This public trust is rooted in the law of England, where public use of tidewaters was primarily for navigation and fishing, and where the King could, in early times, make grants and thereby extinguish rights of public use. But later statutes, as enacted by Parliament, limited this power, and only Parliament could thereafter diminish public rights in tidewaters and tidelands.

(See, generally, R. Hall, *Essay on the Rights of the Crown and the Privileges of the Subject in the Sea Shores of the Realm*, at 106-08, (2d ed. 1875)).

As a result of the American Revolution, the Original States succeeded to all of the sovereign rights and proprietary interests in navigable waters and shorelands as had earlier been held by the Crown and Parliament. (*Martin v. Waddell*, 16 Pet. 367 (1842)). As a matter of constitutional equal footing among the States, all States subsequently admitted into the Union enjoy the same sovereign rights and proprietary interests. (*Pollard v. Hagan*, 3 How. 212 (1845)). The Supreme Court has characterized the nature of the trust relationship in which the State is to protect public uses and values in navigable waters and shorelands:

> The State holds the property of this soil for the conservation of the public rights of fishing thereof, and may regulate the modes of that enjoyment so as to prevent the destruction of the fishery. . . . This power results from the ownership of the soil, from the legislative jurisdiction of the State over it, and from its duty to preserve those public uses for which the soil is held. (*Smith v. Maryland*, 18 How. 71, 75 (1855)).

With respect to the shorelands of the Great Salt Lake, it is true that few areas are adapted to recreational uses for bathing and boating, but there are vast areas of critically valuable marshes, both developed and undeveloped. (Exhibit P-20, pp. 50-60). These areas offer not only public recreation and hunting on a large scale, but serve important national and international wildlife needs as resting and feeding areas for migratory waterfowl. (Exhibit P-20, pp. 50-60). The doctrine of reliction, if applied, would convert most of these

lands into private ownership, eliminate the public trust and deny public use, and render the marshes subject to destruction of wildlife values.

This is so because the uplands surrounding the shorelands of the Great Salt Lake are about 60% privately owned, with the Government owning about 40% (see second map following page 98, Exhibit P-22). All of the native marsh areas, as well as 41,850 acres of the total of 49,800 acres of marsh lands developed and administered by the Utah Division of Wildlife Resources, are located between the present water level and privately owned uplands (Exhibit P-20, pp. 50-60, generally, and p. 54 particularly; compare Exhibit P-22, 2nd map following page 98).

Thus, if reliction is applied in response to the Government's present claim, it would create a precedent that surely would be applied by lower courts in response to reliction claims of private upland patentees. And it is in this way that the public trust lands and wildlife values thereon, and public use of the same, would be destroyed. Of course, reliction claims of private upland owners are not in issue in this case, and they will in no way be adjudicated in this action. But it must be noted that a rule of reliction in this case might ultimately and perhaps inevitably result in destruction of the public trust as to such lands.

C. *An Administrative Nightmare*

There would be an utter impossibility of administering the lakebed lands if the fluctuating water level results in reliction. Relicted lands would appear and disappear not only on a seasonal and monthly basis, but also on a daily and hourly basis.

There is little need to belabor this point. It can be illustrated very simply by reference to Exhibit P-19, which is a map showing the location of the acreage covered by oil and gas leases on the Great Salt Lake. Those leases cover a large area of the land in dispute (T. 81-82). If the lessees discover and produce oil and gas, the difficulties are obvious. In Utah, as elsewhere, the owner of overlying land owns the minerals beneath the land. Thus, if reliction applies despite the fluctuating water level, the State would own the oil and gas beneath the water-covered bed and the adjacent upland owners would own the oil and gas in the "relicted" lands.

But how could anyone keep track of such "relicted" lands, even during the course of a single day? How would anyone know how many acres he owned overlying the pool of oil? The amount of acreage would be in a constant state of flux, because as Mr. Arnow said, the Lake is "continually fluctuating" (T. 54), and, as Exhibits P-16 and P-17 show, the daily and hourly fluctuations of the Lake are substantial.

How could anyone calculate royalty interests? Perhaps the State would insist on maximum production during the Spring and early Summer when the Lake level was at its seasonal high (and the state's underlying mineral ownership therefore at a maximum), and that the wells be shut down during seasonal lows in the water level of the Lake. But perhaps upland owners would insist otherwise. How much litigation might be expected?

Of course, the United States has already deeded any interest it might have had to the State of Utah, including not only the lands presently in dispute, but all

lands within the surveyed meander line. But that does not mean that the foregoing argument is fanciful! Since about 60% of the upland around the Lake is owned by private patentees of the United States (as observed above), a rule of reliction would create the nightmare just illustrated with respect to all of these private interests, even though the United States has quit-claimed its interest.

For another thing, the deed issued by the United States might become void. Section 5(a)(3) of the Great Salt Lake Lands Act (80 Stat. 192) provides that the conveyance "shall be null and void" if Utah does not pay to the United States the amount determined by the Secretary of the Interior within two years following receipt of notice of the amount due, in the event the Government owns any reliction lands. It is conceivable that Utah might think that the Secretary's appraisal was exhorbitant, and thus decide not to buy, particularly if it appears that Utah would then be paying for vast areas of water-covered lands that are clearly part of the bed of the Lake now but were exposed at the date of the deed. In that event, if Utah refused to pay and the deed became void, Utah would own the lands anyway, at least to the extent that they were still water-covered. But the administrative nightmare would still be there.

It is clear that untoward results are to be expected from application of a rule of reliction to convert the shorelands into relicted lands. And, in any event, the merits of this litigation should be determined without reference to the fact that a deed has been issued from the United States to Utah, since the focal point is the state of affairs as they existed immediately *prior* to that deed.

If a "reliction" boundary should be viewed as not following the water's edge, but remaining stable during the year and then shooting instantaneously once each year to a new location at the "average" level of the fluctuations during the preceding 12-month period, the administrative difficulty would be just as awkward. See, for example, the discussion in point I.B.2, *supra.*

As a final note, the Government supported enactment of the Great Salt Lake Lands Act for the reason that a shifting boundary, moving back and forth across the shorelands, would cause great difficulty in administration of these lands. (Exhibit P-22, page 107, Exhibit P-20, page 11).

## VI. THE EQUITIES

### A. *Preface*

Practical, equitable, and public interest factors favor state ownership of the mud flats and thus reinforce the Master's conclusion that there is no legal justification for appling the doctrine of reliction to these shorelands. This section of the brief notes the "public interest" concern of this Court's *Bonelli* decision, explains why the Government has misconceived the public interest criterion, discusses the range and extent of Utah's public interest in the mud flats, and, finally, preserves the option of borrowing Utah law as a source of federal common law if such a course of action should become necessary.

### B. *The "Public Interest" Concern of Bonelli*

In *Bonelli Cattle Co. v. Arizona*, 414 U.S. 313 (1973), this Court emphasized that a state's public in-

terests and programs were pertinent factors to consider in determining whether the doctrine of reliction should apply. The Special Master took note of Utah's public interests and programs in section 4 at page 26 of his report, concluding that Utah's public interest in the mud flats "confirms the Special Master in his recommendation adverse to application of the reliction doctrine." (R. 26).

In point V.B, *supra*, the significance and importance of the State's public trust in the Lake and surrounding shorelands were discussed, but there are other important public interests that should be noted. Perhaps most obvious is the navigational interest, since a holding that the subject lands are not part of the bed of the Lake would divest Utah of access to the very waters which it must regulate. Perhaps most important from an econnomic standpoint is the mineral extraction industry. Utah owns the brines, salts and minerals in solution in the waters of the Lake. These minerals are extracted by pumping water from the Lake into "settling ponds" on the shorelands surrounding the Lake, where solar evaporation causes the minerals to precipitate on the bottom of the ponds. The use of the Lake waters and the evaporating ponds is an integrated operation, performed by lessees of the State who hold leases for use of the brines as well as the shoreland areas. Utah also owns the minerals beneath the bed of the Lake, and substantial acreage is now subject to oil and gas leases; and if production is obtained the shoreland area will be important for extracting, transporting and refining purposes. Utah also owns the brine shrimp which are harvested from the Lake and from shoreland areas when they are washed up on the adjacent lands. Utah further regulates tourist

and recreational uses of the Lake and its beaches, through leases executed with concessionaires and by direct development of beach area, boating facilities, and recreation areas. In short, Utah has many interests of substantial public importance in the Lake and the surrounding shorelands. (See, generally, exhibit P-22, pp. 5-55).

The United States, on the other hand, has no interests, programs, or purposes to be served by owning the shorelands in dispute—other than a naked desire to own such lands in a proprietary capacity. These lands have no significant intrinsic value, but are alternately mud flats and submerged lands, having significant value only in connection with the State's interests, operations and programs on the Lake.

Therefore, consistent with the guidance of *Bonelli*, it is appropriate to consider the public interests and needs of the State in determining the validity of reliction claims, and Utah's interests and needs in support of public purposes present persuasive reasons in support of the Master's report.

### C. *The Government's Misconceptions*

In point IV of the Government's brief, beginning on page 22, it is argued that the Government's reliction claim should be sustained because (1) Congress intended that Utah should have no claim to lands inundated if the water level rose to the statehood level and (2) that the Special Master applied the doctrine of reliction in favor of Utah rather than the United States. Both of these assertions are complete misconceptions.

With respect to the intent of Congress in passing the Great Salt Lake Lands Act, the Government argues that, by accepting that Act, "Utah agreed to waive its right to control the Lake for navigational and related purposes" to the extent that the Lake might rise above the "meander line," in return for benefits accruing from a fixed boundary line. (Government's brief, page 23). This notion is absurd. Neither Utah nor the United States purported to waive any *regulatory or governmental* rights, but merely agreed to quit-claim *proprietary* rights, using the surveyed meander line as the joint boundary.

The Government then advances a most misleading argument on page 23 of its brief, contending that Utah was perfectly willing to forfeit any claim to shorelands inundated if the lake level rose to the statehood level (which it now has). The Government argues:

> Thus, Representative David S. King, of Utah, at the February 1966 hearings on the Great Salt Lake Lands Act, stated (Ex. P-22, p. 112):
>
> > In that event [the return of the Lake to statehood level] the State of Utah would lose and it is perfectly willing to assume that risk. In other words, in this situation certainty is more important to all parties than the matter of gambling over the gain or loss of new territory. What is most important is that we get the matter settled and the State of Utah would be perfectly willing to hazard the risk of its losing acreage if the water should exceed the meanderline * * *. [Hearings Before the Subcommittee on Public Lands of the Committee on Interior and Insular Affairs, on H.R. 1791 and H.R. 6267, Great Salt Lake Relicted Lands, 89th Cong., 2d Sess., at 112 (1966).]

The grievous mischief of the above argument and quotation is that it endeavors to distort the testimony of Representative King so as to make it appear that he was speaking of Utah's willingness to lose any land inundated if the Lake should rise to the statehood level (the area now in dispute), when in fact Representative King was clearly and expressly speaking of the *surveyed meander line*. Of course, the parties have exchanged the quit-claim deeds which now purport to establish the *surveyed meander line* as the permanent boundary, and Representative King was simply indicating Utah's willingness to accept such a compromise. *But not with respect to the lands now in dispute*, situated between the level of the Lake on June 15, 1967 and the statehood level of 4200.8. As pointed out in section II.D, *supra*, there is a substantial difference between the statehood level and the surveyed meander line.

And there can be no doubt whatsoever as to Representative King's intention. The Government conveniently omits the last two words of Representative King's testimony, which in fact was:

> . . . the State of Utah would be perfectly willing to hazard the risk of losing acreage if the water should exceed the meander line or go beyond the meander line *of 1855*. (Exhibit P-22, page 112). (Emphasis added).

There seems to be no purpose in the Government's omission of the last two words of the quotation other than to make it appear that Representative King was referring to a "meander line" located at the statehood level. This is made painfully clear by the Government's insertion of the bracketed words in the quote:

> In that event [the return of the Lake to statehood level] the State of Utah would lose and it is perfectly willing to assume that risk. (Government's brief, page 23).

The actual exchange between Representative Saylor and Representative King is illuminating:

> *Mr. Saylor*: What would happen, Mr. King, if the Great Salt Lake reversed the procedure which new has existed for many years and rose above *the 1855 meander line*?
> *Mr. King*: In that event the State of Utah would lose and it is perfectly willing to assume that risk. (Exhibit P-22, page 112) (Emphasis added).

Thus, the Government's misstatement of the antecedent as being the statehood elevation rather than the surveyed meander line of 1855, coupled with the omission of the two words "of 1855" at the end of Representative King's statement, appear to be an effort on the part of the Government to find a legislative resolution of the very ownership question which has been litigated before the Special Master. And it is difficult to see how the Government hopes to sell that notion, since the purpose of the Great Salt Lake Lands Act was to authorize this very litigation, not to make it moot.

The other misconception of the Government is the claim on page 23 of its brief that the Special Master "in fact applied the doctrine of reliction to the reinundation which occurred since June 15, 1967" in Conclusion of Law No. 4 at R. 32. This is so absurd as to warrant little or no response. The Special Master repeatedly emphasized in his report that the doctrine of reliction did not apply at all, to anyone's benefit or detriment, because of the unique characteristics of the Lake, and that:

> The law of reliction has *not divested* the State of Utah of title to the lands described. (Conclusion of Law No. 4, R. 32) (Emphasis added). (See also, point II.A, *supra*).

The Government's endeavor, of course, is to argue that even though Utah obtained title at statehood, the Master found that such title was lost to the Government by virtue of the doctrine of reliction, and that the Master then erroneously restored title to Utah by applying the doctrine of reliction in Utah's favor. Then, the Government argues on page 25 of its brief:

> Moreover, under the Act the ultimate choice lies with Utah. Should our contention prevail in this Court, the State may choose to pay the United States for the lands conveyed in 1967 and thus obtain the fixed boundary thought to be important when the Act was passed, *or it may choose instead to retain its rights under the doctrine of reliction.* (Emphasis added).

It is difficult to see how the Government hopes to prevail by advancing such an argument, particularly in view of the specific and clear declarations of the Master that Utah has retained its title acquired at statehood and that the doctrine of reliction has no place on the mud flats of the Great Salt Lake.

### D. *Utah's Public Interests*

Utah's public interests in the Lake and its shorelands are many and varied, and are explained in points V.B and VI.B, *supra*, and need not be summarized again here. It might be emphasized, however, that those public interests are not recent developments. They have existed since statehood. As Governor Calvin L. Ramp-

ton explained in his testimony before the House committee considering the Great Salt Lake Lands Act:

> Utah believed that there are many reasons why equities were with the State and the Government should give Utah its claim to the relicted lands. We believe these equities still exist. Utah has assumed ownership of the lands for a long period of time—since statehood. The Government has tacitly agreed to the assumed State ownership until 1961. There is a basic unfairness in asserting a claim at this late date, particularly where, as here, the State has created rights in third parties who would be injured. (Exhibit P-22, p. 139).

Max Gardner, then Director of the Utah Land Board, testified similarly before the Senate committee:

> Rightly or wrongly, the State has assumed ownership and has exercised dominion and control over the lands since the time of statehood. The Government did not seriously assert title until 1961. (Exhibit P-20, p. 49).

During such extended stewardship, the State of Utah and its agencies have spent considerable sums of money and have made many improvements on the lands in question. (See, *e.g.*, Exhibit P-20, pp. 50-60, 60 *et seq.*, and 108-09).

### E. *Utah Law as a Source of Federal Law*

Prior to the *Bonelli* decision, *supra*, Utah had taken the position that state rules of property law should determine the reliction question since title to the lands in dispute admittedly had been acquired by Utah at statehood—and had argued that the disposition of state-owned lands should be a matter of state law, whether

the disposition came about by conveyance or by operation of law. But, after the *Bonelli* decision, Utah withdrew that position before the Master and acknowledged that the Master was bound to apply federal decisional law—which he did. Utah noted, however, that it would preserve the position in the event that it saw fit to request the Court to reconsider its position in *Bonelli*.

Since the Master has found that the disputed lands are not reliction lands under federal law, Utah does not contend for the application of state law.

However, if for some reason that Utah cannot now perceive, the Court should reject the findings and report of the Master, and rule that the disputed lands are in fact reliction lands under federal law, then Utah submits that Utah law should be borrowed as a source of federal law in this particular case. Such a course of action would be justified because of the many practical and equitable factors mentioned above, and because of the many public interests and programs which Utah has in connection with the Lake and its shorelands—and borrowing state law in this case would not necessarily serve as a precedent for borrowing state law in other reliction cases because of the wholly unique physical characteristics of the Great Salt Lake.

Of course, if the Master's report is sustained, state law is entirely moot. If the Master's report is not sustained, then there is ample justification for reaching the same result by borrowing state law. See, generally, Wechsler, *The Political Safeguards of Federalism*, 54 Col. L. Rev. 543 (1954); Mishkin, *The Variousness of Federal law*, 105 U. Pa. L. Rev. 797 (1957); Herbert, *Federal Land and Seashore Accretion*, 28 La. L. Rev.

655 (1968); Corker, *Where Does the Beach Begin, And to What Extent is This a Federal Question*, 42 Wash. L. Rev. 33 (1967); *United States v. Oregon*, 295 U.S. 1, 28 (1935); *Walter v. Pan American Petroleum Corp.*, 384 U.S. 63, 68 (1966).

And Utah law is perfectly clear to the effect that the mud flats are not reliction lands. *Utah v. Hardy Salt Co.*, 26 Utah 2d 143, 486 P.2d 391 (1971).

## VII. TWO MINOR CORRECTIONS AND ONE CLARIFICATION

The Special Master utilized two of the findings of the Hon. J. Cullen Ganey, former Special Master in this case, which are not entirely accurate and which should be corrected. Both the United States and the State of Utah are in agreement that these adjustments should be made. Neither adjustment has any bearing on the merits of Special Master Fahy's report to the Court.

There also is the matter of determining whether the words "such as" should be included within the decree, as it refers to Congressional regulatory authority over the Lake. This item requires some discussion and serious attention, because the parties stipulated to the use of those two words in the Court's earlier decree of May 22, 1972 (406 U.S. 484), and the Government has since misconstrued that language in other litigation, arguing that this Court decided issues that were never before the Court. These matters will be noted below.

A. *The Corrections*

1. *Elevation of Lake at Statehood was 4200.8*

In Finding of Fact No. 10 on page 29 of his report, the Master finds that at statehood the "elevation of the Lake was 4200.2 feet." On page 24 of his report, the Master explains that this figure is taken from page 29 of Master Ganey's report to the Court of October 26, 1970. Since Master Ganey's figure in that regard was not remotely relevant to the issue of navigability then before the Court, the parties ignored it. However, the parties now believe that it should be corrected, since there never has been any evidence to support such a finding; and by a recent exchange of correspondence between the parties it was agreed that each would bring the error to the Court's attention. The Government has done this on page 13 of its brief, observing that the statehood level was 4,200.8 rather than 4,200.2 feet above mean sea level, and by further noting in footnote 7 on that page that the 4,200.2 figure is in error. Utah agrees, and consents and recommends that the figure 4,200.2 as it appears in Finding of Fact No. 10 on page 29 of the Master's report be changed to 4,200.8.

2. *Area in Dispute Totals 396,000 Acres*

The second minor error has a similar origin. Master Ganey explained the nature and extent of various claims to the shorelands around the Great Salt Lake at pages 6-8 of his first report to the Court (dealing with procedural issues), and this summary was quoted by this Court in its *per curiam* opinion of March 3, 1969 (394 U.S. 89, at 90-92). It is therein explained that approximately 600,000 acres are claimed as reliction lands, and that of this amount the United States claims 325,000

acres and private patentees of uplands claim 275,000 acres. Special Master Fahy mentions the 275,000 acre figure at the end of footnote 3 on page 3 of his report, and he incorporates the 325,000 acre figure in Finding of Fact No. 10 on page 29 of his report. As a technical matter, the 325,000 figure refers only to the reliction claims of the United States, whereas the reference in Finding No. 10 seems to include all land exposed between the levels of 4194.9 and 4,200.8. As such, the correct figure is 396,000 acres (exhibit P-5). The Government notes this error in paragraph 1 of its exceptions to the Findings of Fact, at page 3 of its brief. Utah consents and agrees that the figure 325,000 should be changed to 396,000 in Finding of Fact No. 10 on page 29 of the Special Master's report.

B. *The Clarification: Omission of "Such As" in Decree*

At page 5 of its brief, the Government takes the following exception to the decree proposed by the Special Master:

> The United States excepts to the failure of the Special Master to include in the preamble of paragraph 1 the words "such as" in the phrase "subject to any regulations which the Congress may impose in the interest of navigation or pollution control" (R. 32-33), inasmuch as the Decree entered by this Court on May 22, 1972, 406 U.S. 484, uses the phrase "subject to any regulations which the Congress may impose, *such as* in the interest of navigation or pollution control [emphasis added]."

The Special Master concurred in this exception by his transmittal to the Court of June 5, 1974, explaining

that he had inadvertently omitted the words "such as" by following the form of Master Ganey's proposed decree and by failing to notice that the Court modified that proposal by adding the words "such as" in its May 22, 1972 decree.

Utah has a somewhat different suggestion. It is proposed that the first part of paragraph 1 of the decree provide as follows:

> 1. *Subject to any federal regulatory authority that may extend to the Great Salt Lake or its shorelands*, the United States of America, its departments and agencies, are enjoined from asserting against the State of Utah any claim of right, title and interest:

Utah believes that the first clause as emphasized above is infinitely more desirable than simply adding the words "such as" in the decree. This is so because the Government has contended in a case now pending in the United States Court of Appeals for the Tenth Circuit that the Court's use of the words "such as" in its May 22, 1972 decree constituted an adjudication that the regulatory authority of the Corps of Engineers under the Rivers and Harbors Act (33 U.S.C. 401 *et. seq.*) extends to the Great Salt Lake. That contention is a serious misuse of the Court's language. The Tenth Circuit case now pending will be identified in more detail later, but first it is important to explain how the words "such as" became a part of the May 22, 1972 decree.

Under numerous decisions of the Court, the regulatory authority of the United States over navigation extends only to the "navigable waters of the United

States," and those are the waters that form a continuous link for waterborne navigation in interstate or foreign commerce. Navigable waters located within a single State with no navigable outlet to another State are the navigable waters of the States. This distinction was first established in *The Daniel Ball*, 10 Wall. 557 (1870), and it has since been reaffirmed numerous times by this Court.

The Great Salt Lake is located entirely within the State of Utah. The Bear River flows from Idaho into Utah and thence into the Great Salt Lake, but the navigability of the Bear River from the Great Salt Lake into Idaho was never an issue in this litigation because the regulatory authority of the United States over the Lake has never been an issue. Following the navigability hearings in May of 1969, Special Master Ganey requested the parties to file briefs, and at page 9 of its brief, the Government indicated that it might wish to argue that States receive title only to the beds of the navigable waters of the United States and not to the navigable waters of the States, but acknowledged that such an argument was then foreclosed by Supreme Court opinions to the contrary, and indicated that the Government might elect to request the Supreme Court to reconsider its earlier decisions. Special Master Ganey noted this in note 5 at page 7 of his second report to the Court, dealing with the navigability of the Lake (all references to the Master's report hereafter in this section of the brief refer to Master Ganey's report on navigability):

> . . . the United States reads the opinions of *United States v. Utah*, 283 U.S. 64, 75 (1931) and *United States v. Oregon*, 295 U.S. 1, 14 (1935),

> as foreclosing this argument at this juncture and merely preserves the point "in the event it seems appropriate to urge reconsideration of those decisions when the Special Master's report is before the Honorable Court."

When Special Master Ganey submitted his report to the Court, it was entirely in favor of the State of Utah, and the Government thus found it "appropriate" to argue the question of interstate navigability. Since this had not been an issue during the hearings when the evidence was taken, additional hearings would have been required to resolve that issue, and Utah questioned the propriety of the Government's attempt to assert such an issue at such a late date:

> More than two years after the action was filed, hearings were held to take evidence [on navigability]. The parties agreed to and acknowledged the correct legal test of navigability—and evidence was taken accordingly. Then, months after the hearings were concluded, the Government indicated that it might want to reframe the legal criteria for navigability.
>
> If this were an appeal, the Government would be foreclosed from reversing its legal position. But in original actions, the procedural rules are very unclear. Since the Government did not make any request whatsoever of the Special Master—it simply signalled its intention, after the trial, of adopting a new theory if it seemed necessary—the Special Master did not respond to that notice. (Utah's brief before the Supreme Court, March 9, 1971, at pages 112-13).

Special Master Ganey did find that the Great Salt Lake was navigable, and noted that there had been some navigation on the tributaries to the Lake, but that

no eivdence had been introduced to show interstate navigation:

> . . . even though there is evidence that vessels sailed from the Bear River to the Lake, and up the Jordan River from the Lake, there is no evidence upon which to base a finding that vessels could travel on water between the Lake and its affluents to any place outside the State of Utah since 1824. (Finding No. 24, page 24, Special Master's Report on Navigation).

As stated above, the question of interstate navigability had not been an issue during the hearings and no evidence addressed that question, and the Master concluded in his Report that it would be unnecessary to determine whether the Lake was navigable in interstate commerce, because:

> The fact that the body of water in question is not capable for use for navigation in interstate or foreign commerce will not defeat a State's claim of title to the bed of that body of water. (Special Master's Report on Navigation, Conclusion of Law No. 10, page 51).

This Court agreed, and held that interstate navigability was not a requirement for state title (as it had held several times earlier), since all that was required was that the body of water be a navigable highway, "and that is the gist of the federal test." (403 U.S. 9, 11).

In any event, since the *factual* question of interstate navigability had not been tried or resolved in the hearings, Special Master Ganey recited in paragraph 1 of his proposed decree that the United States was enjoined from asserting any claim of right, title and interest to the bed of the Great Salt Lake, "subject to any regulations which the Congress may impose in the in-

terest of navigation or pollution control." This language was appropriate because if in any future litigation it should be proved that the Lake is navigable interstate, then no decree should enjoin the United States from exercising its regulatory powers. The Court did not enter this decree, but referred it to counsel for the parties for their review to see if they could agree on the form and content of the final decree.

Under date of August 27, 1971, Solicitor General Erwin N. Griswold wrote to Utah Attorney General Vernon B. Romney, saying:

> . . . to make paragraph 1 consistent with the full scope of congressional powers, we suggest that the phrase "in the interest of navigation or pollution control" be changed to, "such as in the interest of navigation or pollution control."

Attorney General Romney responded as follows:

> Utah is not particularly concerned with the scope of paragraph No. 1 insofar as it refers to the regulatory powers of Congress. Since it is not clear that the Great Salt Lake forms any navigable link in interstate commerce, it is not at all evident that the Lake is a "navigable water of the United States" for purposes of federal regulatory powers. This question is not before the Court or the Master, and we view the pertinent language of paragraph No. 1 to be only a recital of the obvious—that the State's ownership interest cannot prevent Congress from exercising its constitutional regulatory powers. *The parties, by consenting to the Decree to be entered, will not be restricting or enlarging the constitutional powers of Congress. Therefore, Utah's consent to the Decree is not an acknowledgment of federal regulatory powers on the Lake—but is an acknowledgment that if federal regulatory pow-*

> *ers apply to the Lake, they can be exercised by Congress, in its sole discretion, unrestricted by State ownership.* However, your modification in paragraph No. 1 is based on a sensible observation, and it is acceptable to us, *subject to the observations made above.* (*Letter from Utah Attorney General Vernon B. Romney to Solicitor General Erwin N. Griswold*, dated September 13, 1971, with a copy to Special Master J. Cullen Ganey). (Emphasis added).

There was no further correspondence between the parties concerning paragraph 1 of the Master's proposed decree, although in a subsequent telephone conversation the Government acknowledged that it agreed with the above-quoted content of Utah's letter.

So far as now material, the parties consented and stipulated to the language contained within paragraph No. 1 of the decree as approved and entered by the Court; and the Court adopted the *exact* language submitted by the parties, without changing so much as a comma, and without any hearings, arguments, or discussions thereon. Therefore, the language in the decree entered by this Court came about in the manner explained above. As yet, there has been no showing that the Great Salt Lake is a navigable water of the United States (*i.e.*, that it is navigable interstate).

It is time now to return to the litigation pending in the United States Court of Appeals for the Tenth Circuit. That litigation actually consists of three consolidated cases (Civil No. 73-1714, 73-1715, and 73-1716), denominated *Hardy Salt Company, et al, v. Southern Pacific Transportation Company.* One of the issues there pending is whether the Rivers and Harbors Act (33 U.S.C. 401, *et seq.*) applies to the Great Salt Lake

(particularly, to the Southern Pacific Company's railroad causeway across the Lake) as a "navigable water of the United States."

The United States filed an *amicus curiae* brief in that case on April 8, 1974, arguing at pages 7-8:

> We can only conclude from *Utah v. United States, supra*, as well as from the realities of the modern world, that to be subject to the regulatory power of the Federal Government, it is not necessary that navigable waters flow interstate, only that they have been, are being, or could conceivably be used as one link in a transportation network moving goods in interstate commerce. The Great Salt Lake is such a body of water. Indeed, the Supreme Court in *Utah v. United States, supra*, could have intended nothing less. The report of the Special Master, appended to the opinion, could hardly be more explicit:
>
> 1. The United States of America, its departments and agencies, are enjoined, *subject to any regulations which the Congress may impose in the interest of navigation or pollution control*, from asserting against the State of Utah any claim of right, title and interest:

The Government then sent a follow-up letter to the Circuit Court, observing that its prior brief quoted from the Master's proposed decree, and calling the Circuit Court's attention to this Court's final decree as "germane" because it had modified the Master's proposed decree (by addition of the words "such as"):

> . . . the Supreme Court's decree in *Utah v. United States*, 406 U.S. 484 (1971), is germane. It is not cited in any of the briefs and the language is slightly different from the report of the Special Master appended to the Court's opinion in *Utah*

*v. United States*, 403 U.S. 9, 13 (1971). (*Letter from Terrence L. O'Brien to Howard K. Phillips*, April 8, 1974, pages 1-2).

The clear implication intended by the Government is that this Court considered the language in the Special Master's proposed decree, and after deliberation made a slight modification in language to sharpen the accuracy of paragraph No. 1. That implication is false and misleading, since it was counsel for the parties who stipulated to that exact language, and to the addition of the words "such as" pursuant to the Solicitor General's request—with the understanding that there was to be no implication that this Court had made any adjudication with respect to the regulatory authority of the United States over the Great Salt Lake.

Utah filed an *amicus curiae* brief in the Tenth Circuit, responding to the Government's *amicus* brief, and pointing out, among other things, the same background concerning the words "such as" as is explained above.

Of course, there still is no issue before this Court with respect to the regulatory authority of the United States over the Great Salt Lake. And Utah certainly is not endeavoring to insert such an issue here, nor to influence the Tenth Circuit case in this proceeding. But, having taken pains to exchange correspondence with the Solicitor General and explain the intended purpose of and limitation upon the pertinent language in the decree, Utah has since found it distressing to see the Government seize upon that language in an effort to extend the regulatory authority of the Corps of Engineers over the Great Salt Lake. Consequently, Utah is gun-shy about consenting to a routine insertion of the

words "such as" in Special Master Fahy's proposed decree. Utah much prefers that the introductory clause be:

> Subject to any federal regulatory authority that may extend to the Great Salt Lake or its shorelands, . . .

Then, if and when subsequent disputes must be litigated concerning federal regulatory authority over the Lake, those disputes can be litigated on the merits—and not by searching for controlling implications in the decrees entered in this land title litigation.

## CONCLUSION

By way of conclusion, it may fairly be stated that the Great Salt Lake has never stabilized at any time since the settlement of the Great Salt Lake Valley; that the water fluctuations have ranged through high periods and low periods, always with marked seasonal fluctuations; that each year thousands upon thousands of acres of mud flats are inundated as the waters rise to their seasonal high when the run-off to the Lake comes from mountain streams, and then falls and exposes thousands upon thousands of acres as evaporation causes the Lake to lower; and that even on a monthly, daily, or hourly basis during and within the general seasonal trends, the water level is continually fluctuating up and down, exposing and inundating vast acreages.

Thus, whether viewed during the entire span of time from 1850 to the present, or at five-year intervals, or at yearly intervals, or at monthly intervals, or at daily intervals, or at hourly intervals, the Lake waters continue to rise and fall, rapidly and perceptibly advancing

upon and retreating from the vast, barren, flat, saline shorelands surrounding the Lake.

The common law doctrine of reliction was devised to work a change of title when a body of water gradually, imperceptibly and permanently assumed a new stage or character as a result of natural processes, but has no application to the unique, saline mud flats surrounding the Great Salt Lake.

It is therefore respectfully submitted that the report of Special Master Charles Fahy is in all respects correct on the merits, and that the Findings of Fact, Conclusions of Law, and Decree be accepted and approved by this Honorable Court, subject only to the minor modifications that:

> ***Finding of Fact No. 10*** be adjusted by inserting 4200.8 in lieu of 4200.2, and by inserting 396,000 in lieu of 325,000. (The parties agree to these adjustments).
>
> ***The Decree*** be modified by revising the first part of paragraph No. 1 to read as follows:
>
> > Subject to any federal regulatory authority that may extend to the Great Salt Lake or its shorelands, the United States of America, its departments and agencies, are enjoined from asserting against the State of Utah any claim of right, title and interest: (The United States apparently does not agree to this modification).

Respectfully submitted,

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June 13, 1974

# APPENDIX: TABULATION AND IDENTIFICATION OF EXHIBITS

## *EXHIBITS INTRODUCED BY UTAH*

P-1 Corps of Engineers base map of Great Salt Lake and surrounding area, for general orientation.

P-2 U.G.M.S. Map of Great Salt Lake, for general orientation purposes, showing elevation contours at five-foot intervals.

P-3 U.S.G.S. gaging station records from 1875 to October, 1972, showing elevation of Lake above mean sea level.

P-4 U.S.G.S. hydrograph, showing gage readings.

P-5 Tabulation of surface area of Lake at 1/10-foot intervals.

P-6 Photographs of exposed lands around Great Salt Lake (black-and white pictures taken October 26, 1972; color pictures taken February 12, 1973).

P-7 Fluctuation of Lake level in elevation at five-year intervals.

P-8 Fluctuation in surface area of Lake at five-year intervals (companion exhibit to P-7).

P-9 Fluctuation of Lake level in elevation at one-year intervals (with gage readings taken on June 1 and November 1 of each year from 1850 to 1972).

P-10 Fluctuation in surface area of Lake at one-year intervals, showing surface area as of June 1 and

November 1 of each year from 1850 to 1972 (companion exhibit to P-9).

P-11 Fluctuation of Lake level in elevation at monthly intervals (with gage readings at the first of each month from 1896 to February, 1973).

P-12 Fluctuation in surface area of Lake at monthly intervals at the first of each month from 1896 to February, 1973 (companion exhibit to P-11).

P-13 Fluctuation of Lake level in elevation on monthly grid as of the first and fifteenth of each month from 1955 to February, 1973).

P-14 Fluctuation in surface area of Lake for each month from 1955 through February, 1973 (companion exhibit to P-13).

P-15 Contrast in fluctuations in elevation and surface area of the Lake for 1903-04 and 1906-07 periods (illustrating a rather typical period and a more pronounced period of fluctuations).

P-16 U.S.G.S. gage recording of Lake level for June, 1967.

P-17 Daily average fluctuation of Lake in elevation and surface area for June, 1967 (based on exhibit P-16).

P-18 Influence on Lake of artifical diversions from tributaries, a report entitled "Great Salt Lake Elevations Adjusted for the Effects of Man-Caused Reduction of the Inflow to the Lake."

P-19 Map showing area of Lake and shorelands covered by oil and gas lease applications on the Great Salt Lake.

P-20 Senate Hearings on Great Salt Lake Lands Act (introduced as exhibit P-31 in navigability hearings).

P-21 Senate Committee Report on Great Salt Lake Lands Act (introduced as exhibit P-34 in navigability hearings).

P-22 House Hearings on Great Salt Lake Lands Act (introduced as exhibit P-32 in navigability hearings).

P-23 House Committee Report on Great Salt Lake Lands Act (introduced as exhibit P-33 in navigability hearings).

P-24 Utah statute accepting terms of Great Salt Lake Lands Act (introduced as exhibit P-35 in navigability hearings).

## *EXHIBITS INTRODUCED BY THE UNITED STATES*

D-1 B.L.M. preliminary work map of the Great Salt Lake.

D-2 Colored map of Great Salt Lake showing shoreland areas.

D-3 Table of average annual change in altitude (elevation) of Lake.

D-4 Cross-sections of selected areas of the Lake.

D-5 Cross-section index map (used in conjunction with D-4).

D-6 Fluctuation of Lake level in elevation at one-year intervals from 1850 to 1968.

***JOINT EXHIBITS INTRODUCED BY THE PARTIES***

J-1 Sketch map showing elevation of Lake Bonneville.

J-2 Pencil sketch of bed of Lake Bonneville (showing water elevation at two different levels to illustrate evaporation from the Lake).

## CERTIFICATE OF SERVICE

I, Vernon B. Romney, Attorney General of, and counsel for, the State of Utah, and a member of the Bar of this Court, do hereby certify that copies of the foregoing Reply Brief of the State of Utah were served upon the Solicitor General of the United States of America, Department of Justice, Washington, D.C., 20530, by mailing the same air mail, postage prepaid, this 11th day of June, 1974, all in accordance with the Rules of this Court.

VERNON B. ROMNEY

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Utah Attorney General